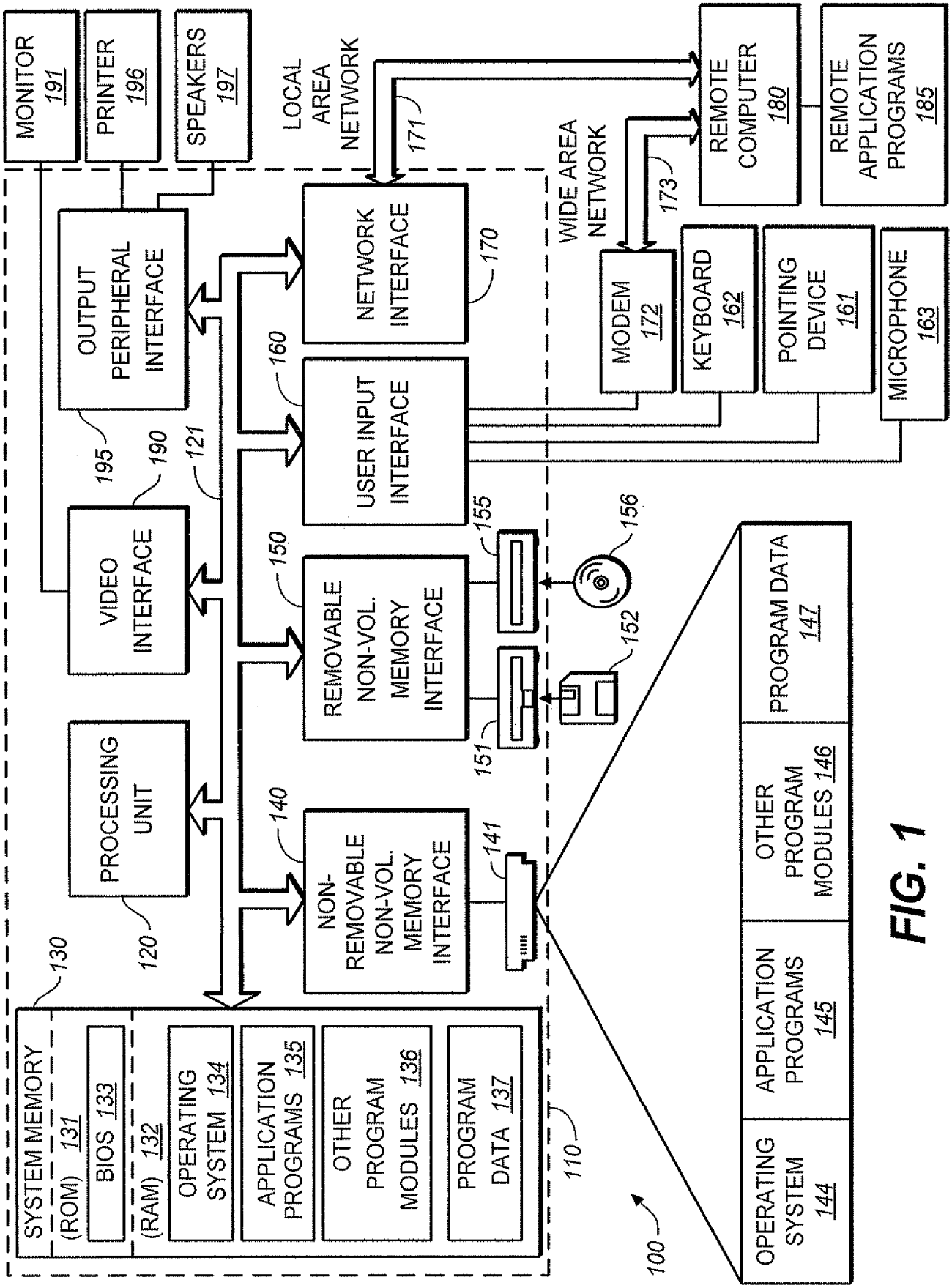

MONITOR 191
PRINTER 196
SPEAKERS 197
LOCAL AREA NETWORK
171
WIDE AREA NETWORK
173
REMOTE COMPUTER 180
REMOTE APPLICATION PROGRAMS 185
OUTPUT PERIPHERAL INTERFACE
NETWORK INTERFACE 170
MODEM 172
KEYBOARD 162
POINTING DEVICE 161
MICROPHONE 163
USER INPUT INTERFACE
160
195
190
121
VIDEO INTERFACE
150
REMOVABLE NON-VOL. MEMORY INTERFACE
155
156
152
151
PROCESSING UNIT
120
140
NON-REMOVABLE NON-VOL. MEMORY INTERFACE
141
130
SYSTEM MEMORY
(ROM) 131
BIOS 133
(RAM) 132
OPERATING SYSTEM 134
APPLICATION PROGRAMS 135
OTHER PROGRAM MODULES 136
PROGRAM DATA 137
110
100
OPERATING SYSTEM 144
APPLICATION PROGRAMS 145
OTHER PROGRAM MODULES 146
PROGRAM DATA 147

FIG. 1

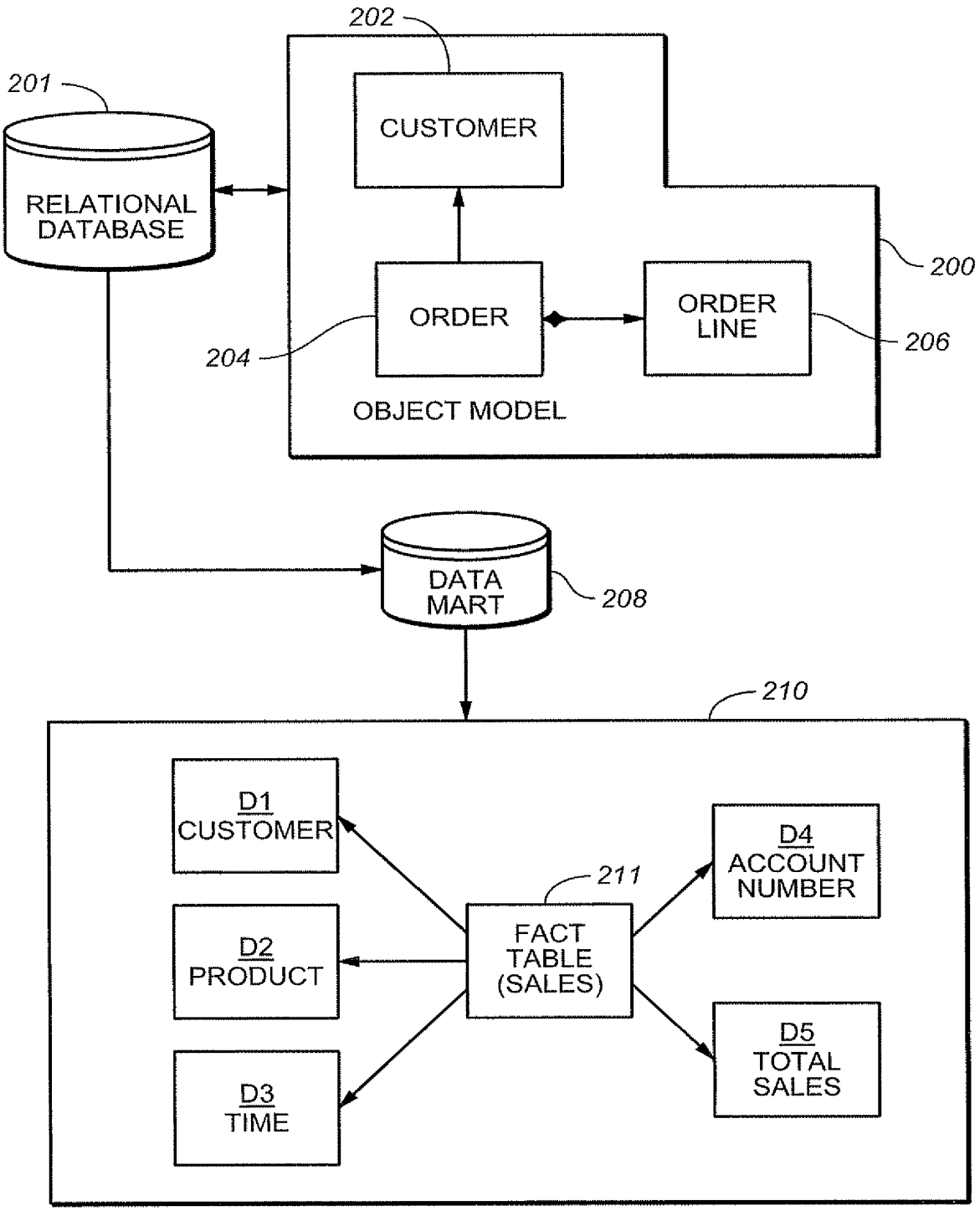


FIG. 2
(PRIOR ART)

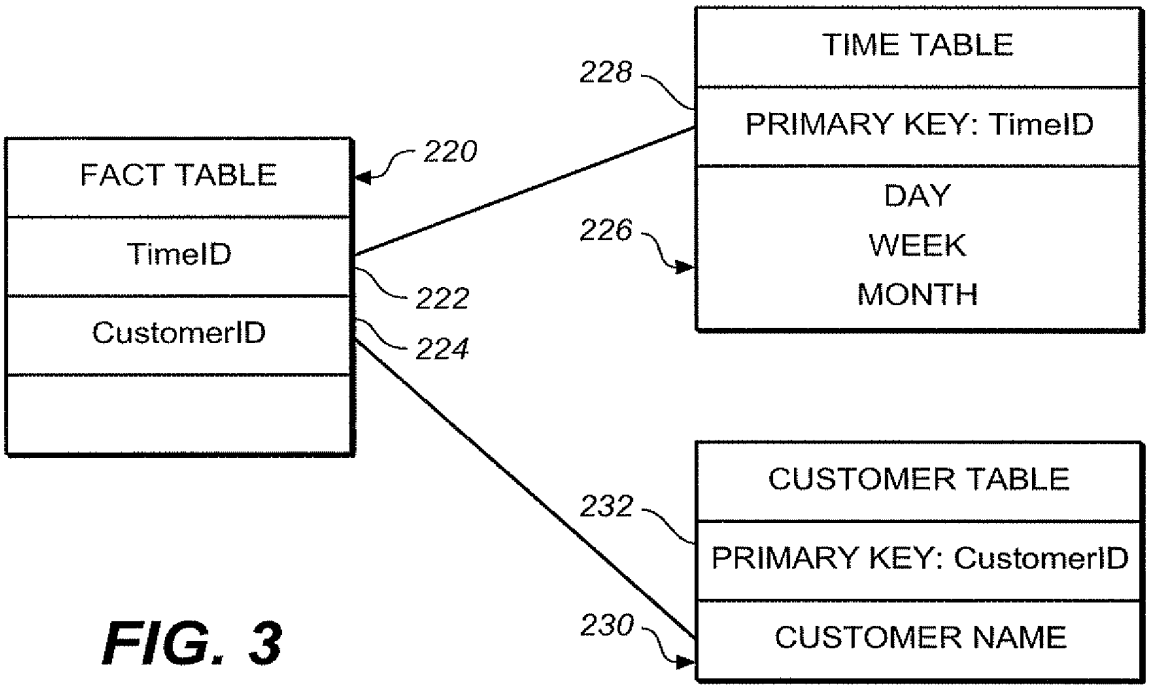

TIME TABLE
228
PRIMARY KEY: TimeID
DAY
WEEK
MONTH
226
FACT TABLE
220
TimeID
222
CustomerID
224
CUSTOMER TABLE
232
PRIMARY KEY: CustomerID
CUSTOMER NAME
230

FIG. 3

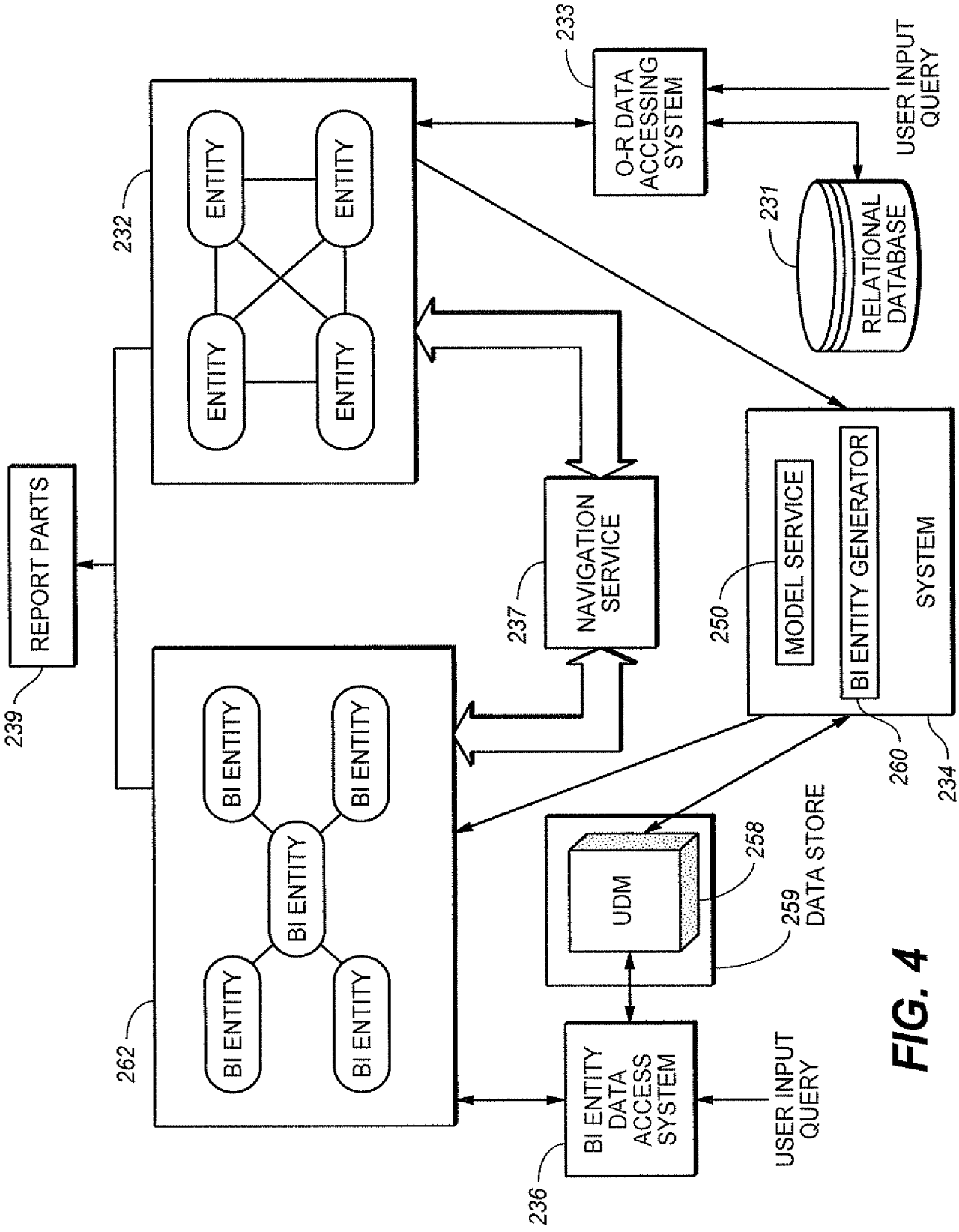

233
O-R DATA ACCESSING SYSTEM
USER INPUT QUERY
231
RELATIONAL DATABASE
232
ENTITY
ENTITY
ENTITY
ENTITY
REPORT PARTS
239
NAVIGATION SERVICE
237
MODEL SERVICE
BI ENTITY GENERATOR
SYSTEM
250
260
234
BI ENTITY
BI ENTITY
BI ENTITY
BI ENTITY
BI ENTITY
262
UDM
258
259
DATA STORE
BI ENTITY DATA ACCESS SYSTEM
236
USER INPUT QUERY

FIG. 4

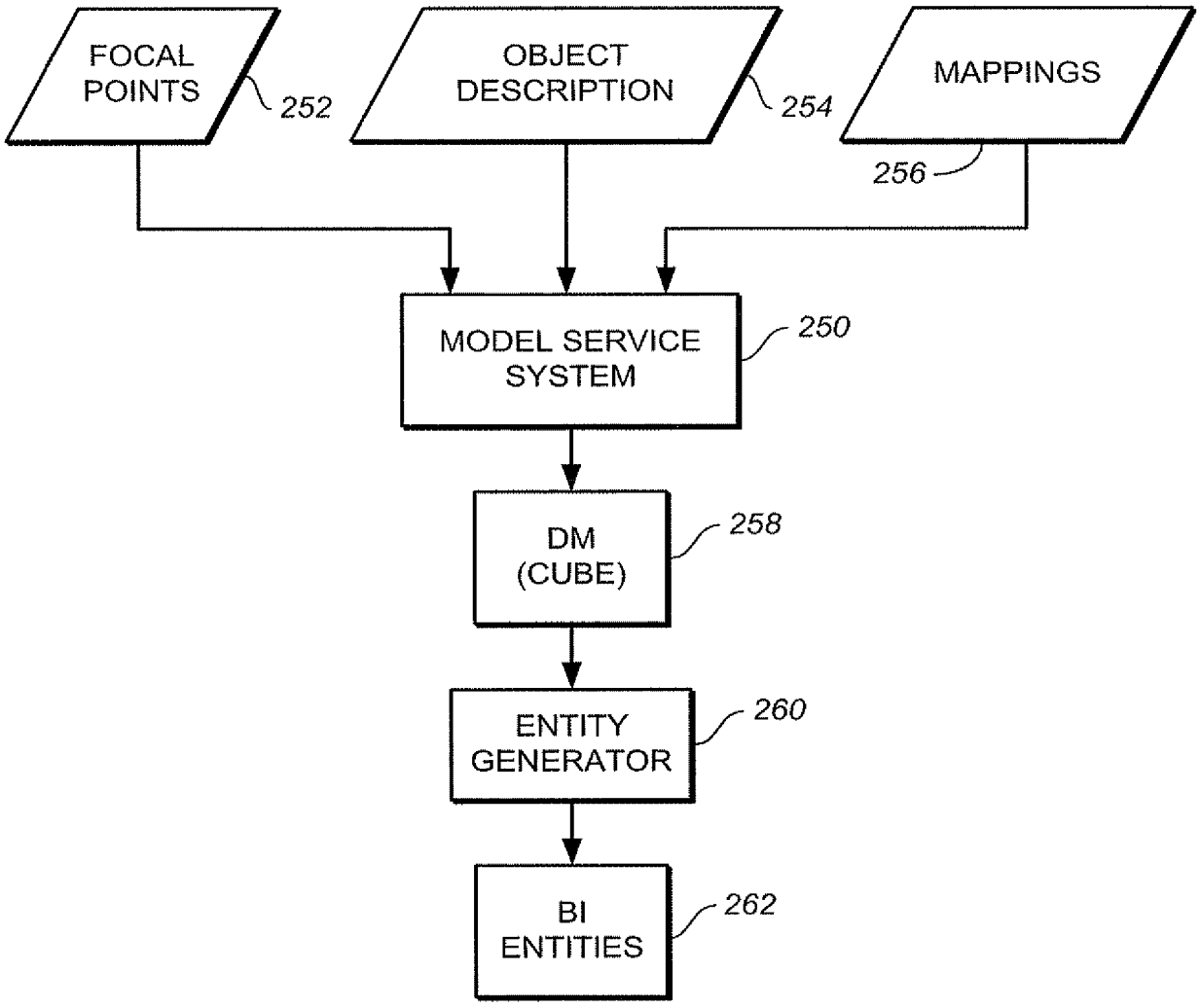

FOCAL POINTS
252
OBJECT DESCRIPTION
254
MAPPINGS
256
MODEL SERVICE SYSTEM
250
DM (CUBE)
258
ENTITY GENERATOR
260
BI ENTITIES
262

FIG. 4A

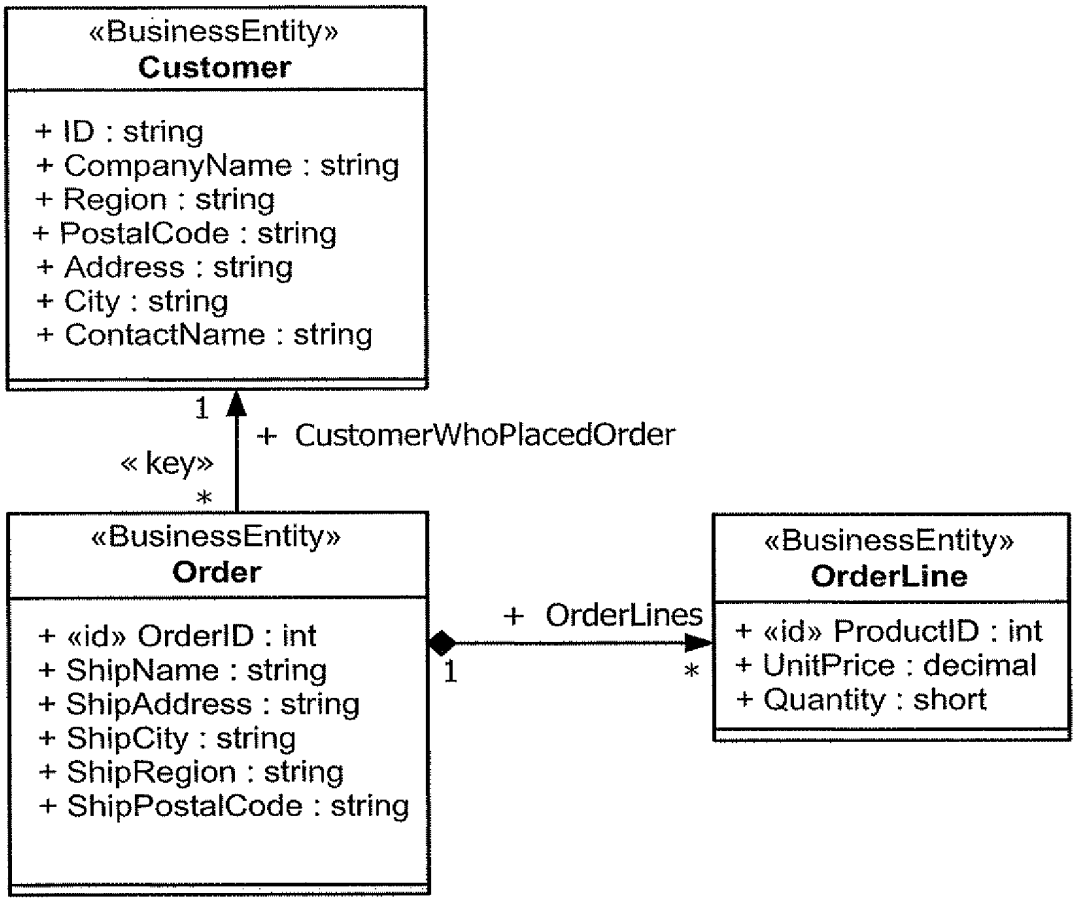

«BusinessEntity»
Customer
+ ID : string
+ CompanyName : string
+ Region : string
+ PostalCode : string
+ Address : string
+ City : string
+ ContactName : string
1
+ CustomerWhoPlacedOrder
« key»
*
«BusinessEntity»
Order
+ «id» OrderID : int
+ ShipName : string
+ ShipAddress : string
+ ShipCity : string
+ ShipRegion : string
+ ShipPostalCode : string
+ OrderLines
1
*
«BusinessEntity»
OrderLine
+ «id» ProductID : int
+ UnitPrice : decimal
+ Quantity : short

FIG. 4B

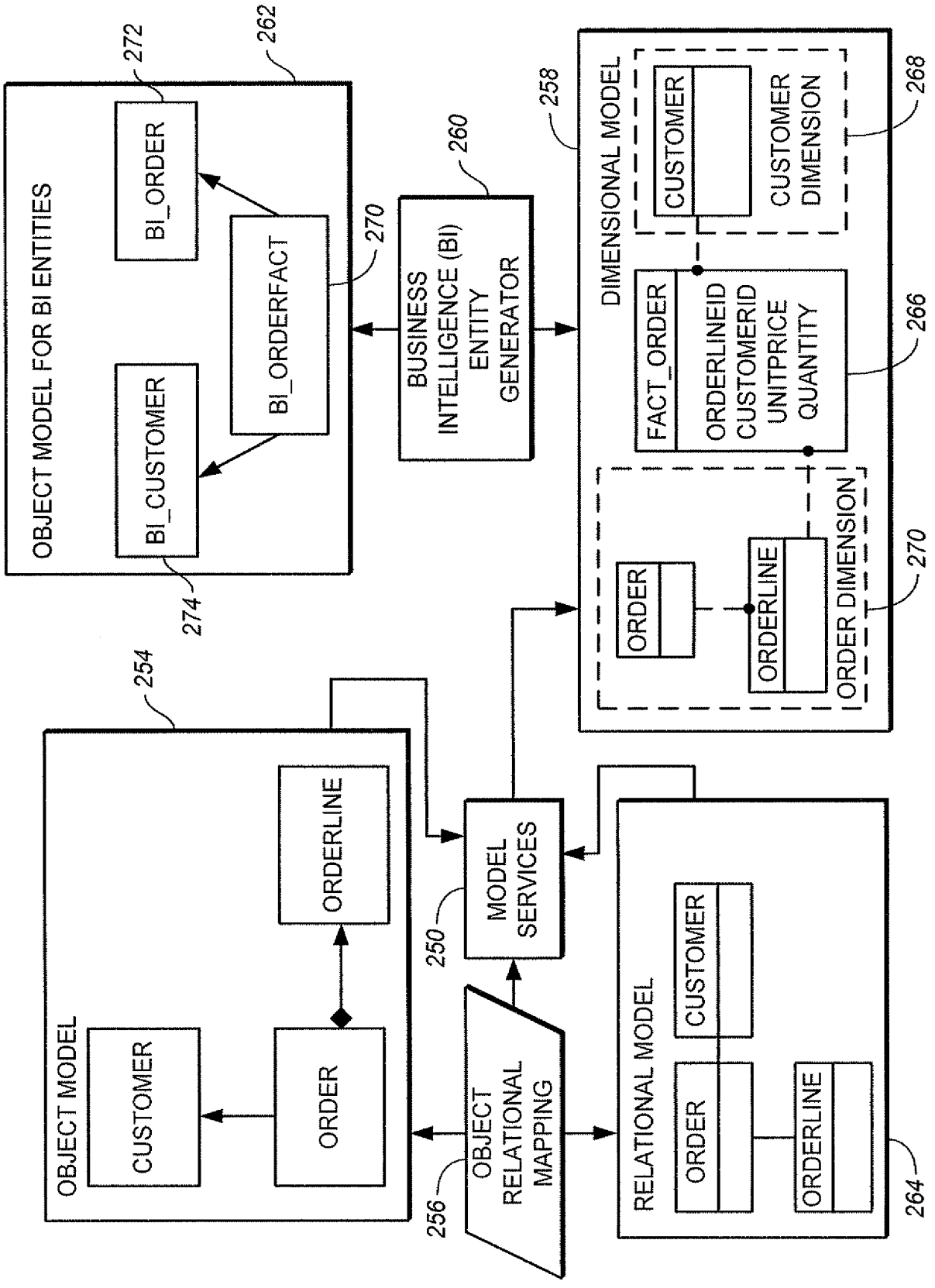

OBJECT MODEL FOR BI ENTITIES
BI_ORDER
BI_ORDERFACT
BI_CUSTOMER
BUSINESS INTELLIGENCE (BI) ENTITY GENERATOR
DIMENSIONAL MODEL
CUSTOMER
CUSTOMER DIMENSION
FACT_ORDER
ORDERLINEID
CUSTOMERID
UNITPRICE
QUANTITY
ORDER
ORDERLINE
ORDER DIMENSION
OBJECT MODEL
CUSTOMER
ORDER
ORDERLINE
MODEL SERVICES
OBJECT RELATIONAL MAPPING
RELATIONAL MODEL
CUSTOMER
ORDER
ORDERLINE
262
272
274
270
260
258
268
266
270
254
250
256
264

FIG. 4C

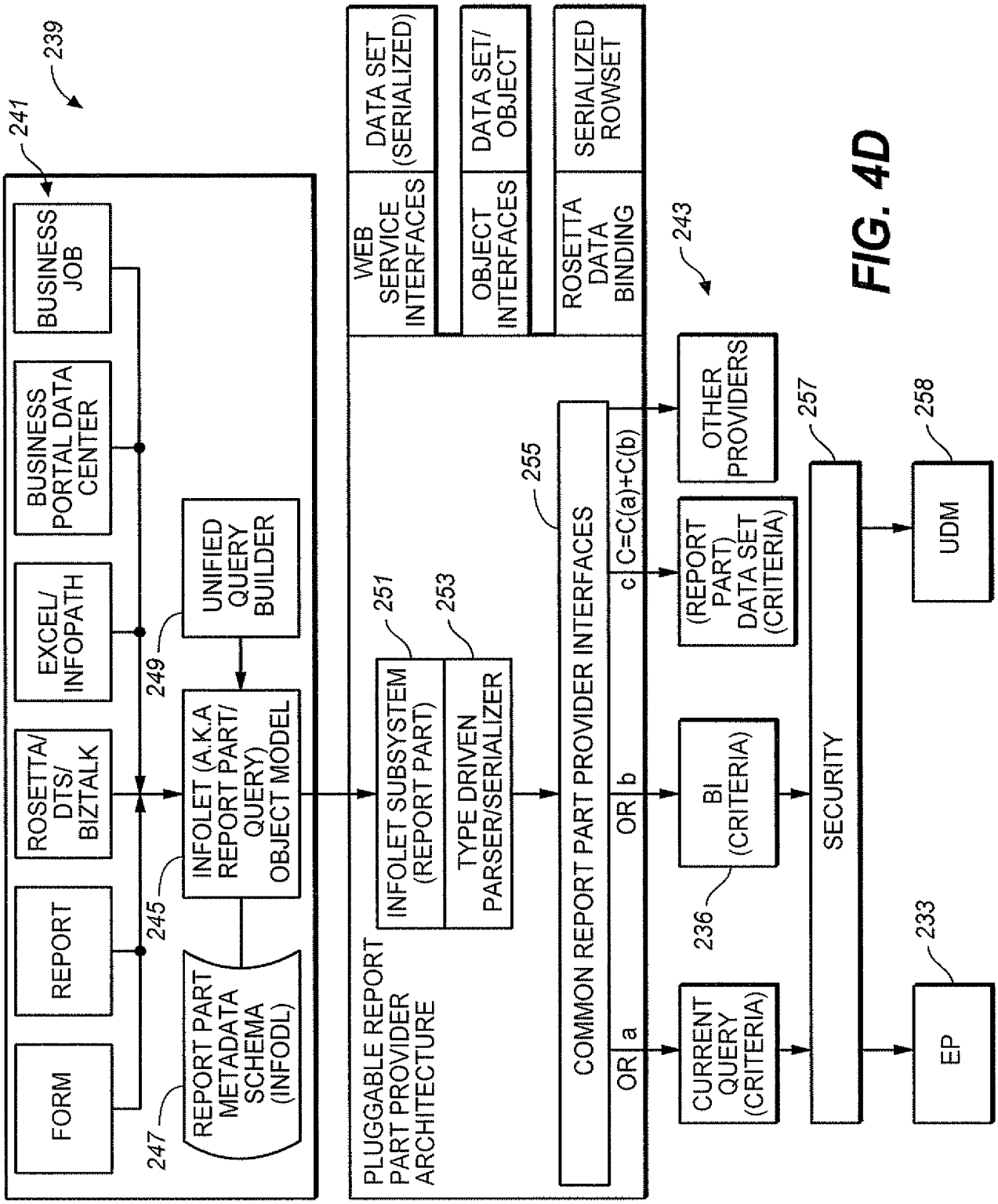

239
241
BUSINESS JOB
BUSINESS PORTAL DATA CENTER
EXCEL/ INFOPATH
ROSETTA/ DTS/ BIZTALK
REPORT
FORM
249
UNIFIED QUERY BUILDER
INFOLET (A.K.A REPORT PART/ QUERY) OBJECT MODEL
245
247
REPORT PART METADATA SCHEMA (INFODL)
PLUGGABLE REPORT PART PROVIDER ARCHITECTURE
251
INFOLET SUBSYSTEM (REPORT PART)
253
TYPE DRIVEN PARSER/SERIALIZER
255
COMMON REPORT PART PROVIDER INTERFACES
OR a
OR b
c C=C(a)+C(b)
WEB SERVICE INTERFACES
DATA SET (SERIALIZED)
OBJECT INTERFACES
DATA SET/ OBJECT
ROSETTA DATA BINDING
SERIALIZED ROWSET
243
OTHER PROVIDERS
(REPORT PART) DATA SET (CRITERIA)
257
258
UDM
236
BI (CRITERIA)
SECURITY
CURRENT QUERY (CRITERIA)
233
EP

FIG. 4D

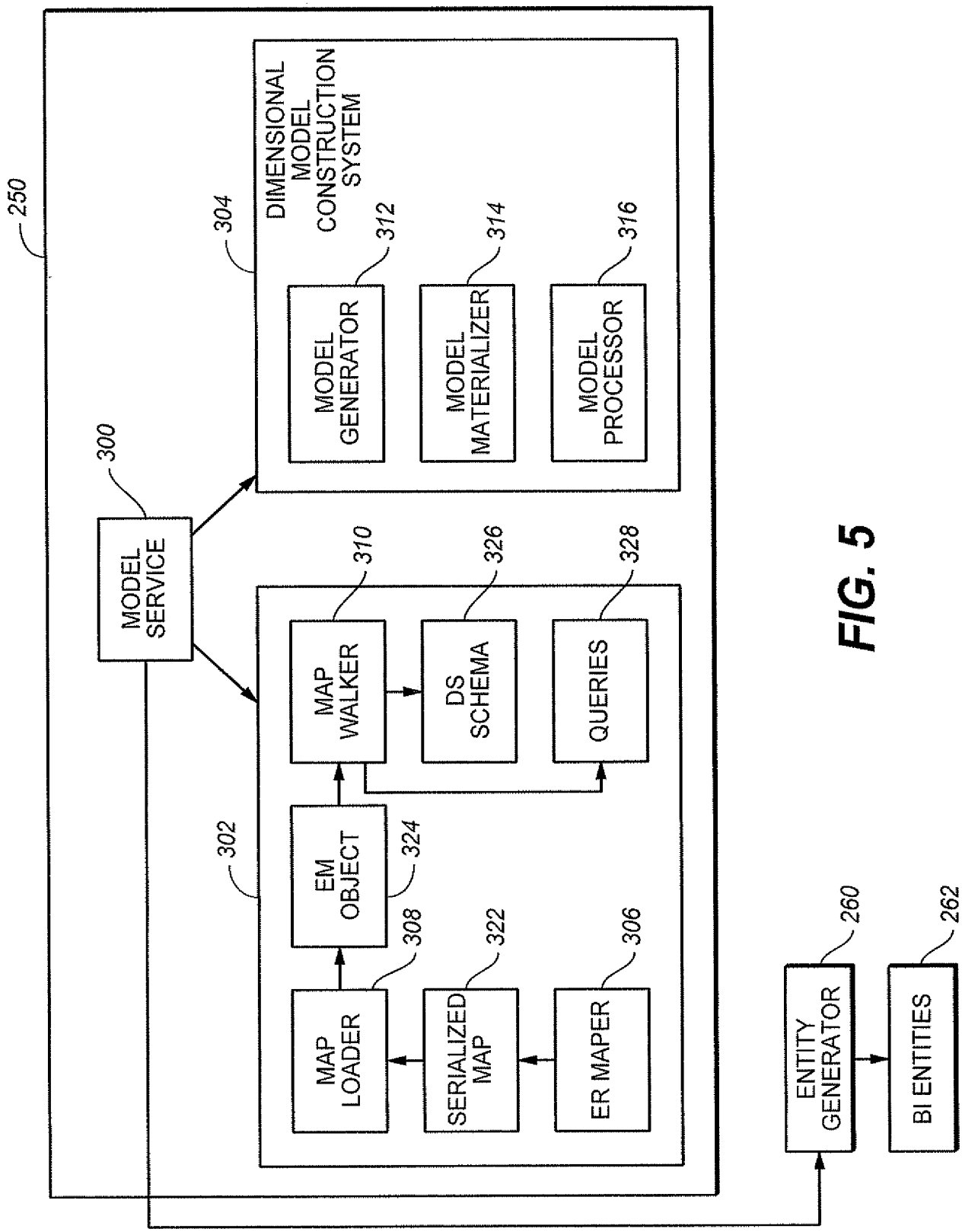

250
304
DIMENSIONAL MODEL CONSTRUCTION SYSTEM
312
MODEL GENERATOR
314
MODEL MATERIALIZER
316
MODEL PROCESSOR
300
MODEL SERVICE
310
MAP WALKER
326
DS SCHEMA
328
QUERIES
302
EM OBJECT
324
308
MAP LOADER
322
SERIALIZED MAP
306
ER MAPER
260
ENTITY GENERATOR
262
BI ENTITIES

FIG. 5

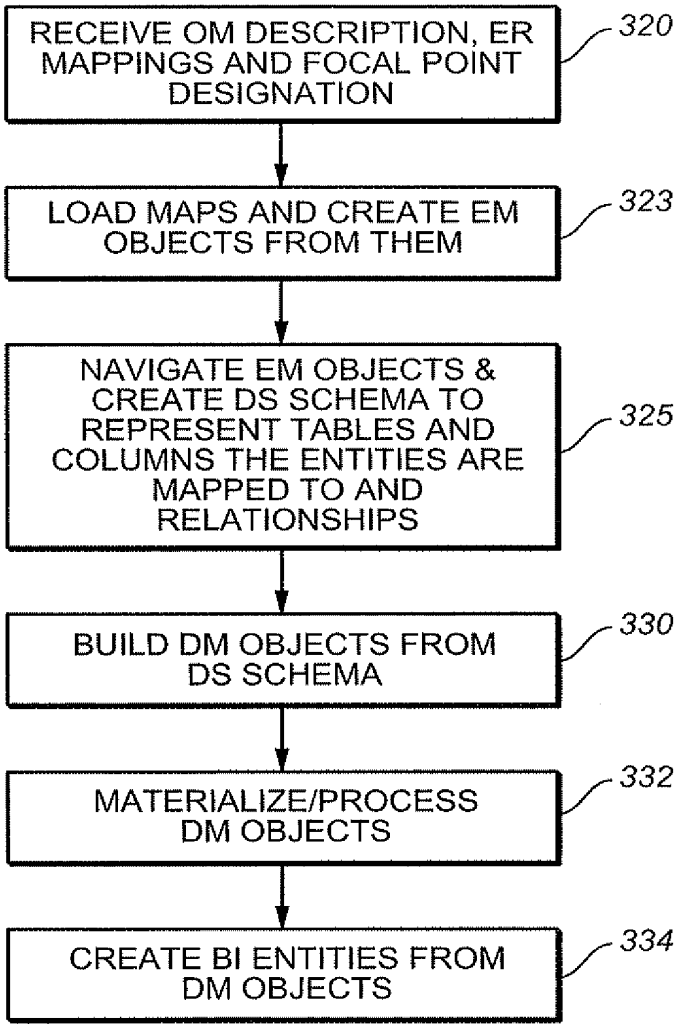

RECEIVE OM DESCRIPTION, ER MAPPINGS AND FOCAL POINT DESIGNATION
320
LOAD MAPS AND CREATE EM OBJECTS FROM THEM
323
NAVIGATE EM OBJECTS & CREATE DS SCHEMA TO REPRESENT TABLES AND COLUMNS THE ENTITIES ARE MAPPED TO AND RELATIONSHIPS
325
BUILD DM OBJECTS FROM DS SCHEMA
330
MATERIALIZE/PROCESS DM OBJECTS
332
CREATE BI ENTITIES FROM DM OBJECTS
334

FIG. 6A

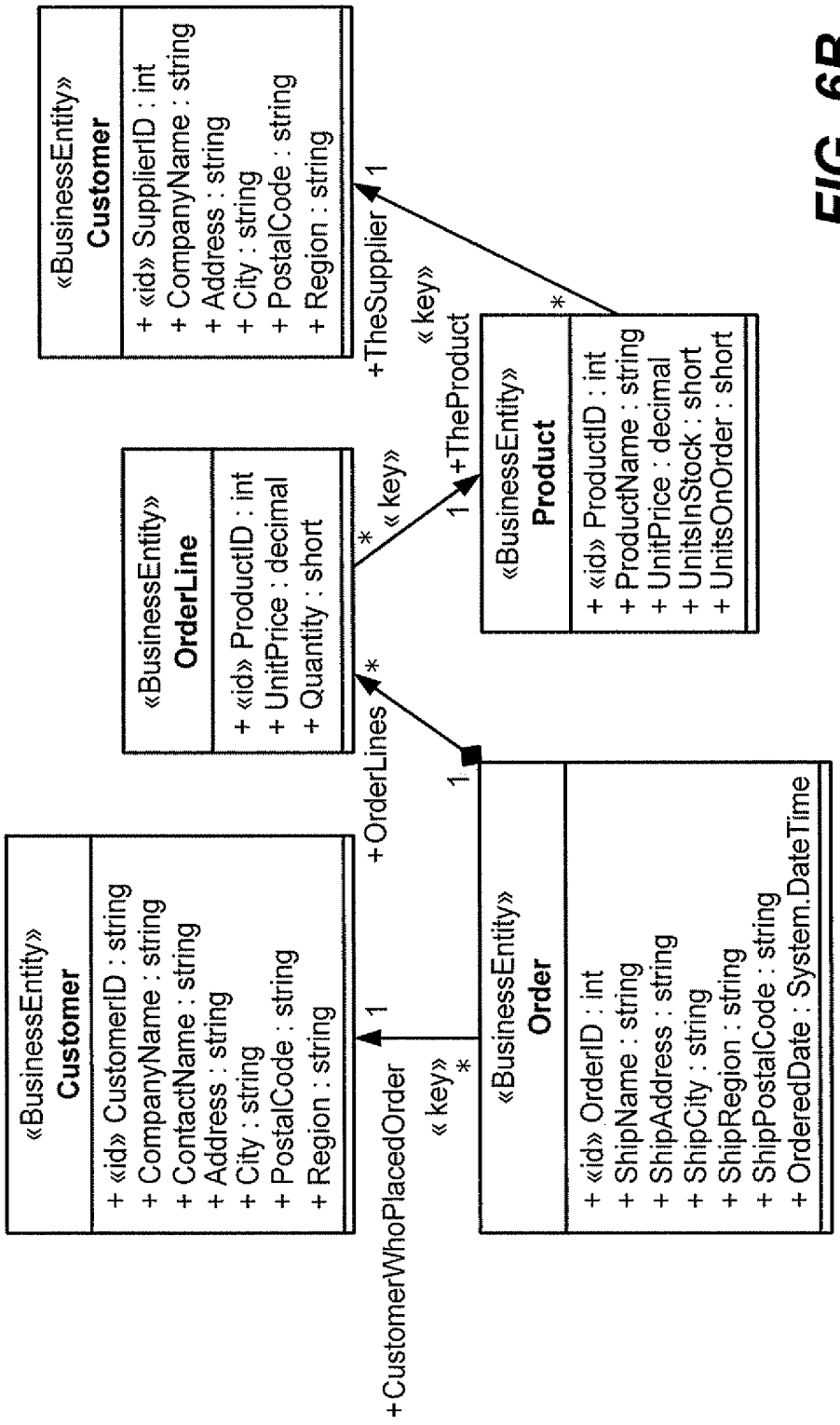

«BusinessEntity»
Customer
+ «id» CustomerID : string
+ CompanyName : string
+ ContactName : string
+ Address : string
+ City : string
+ PostalCode : string
+ Region : string
+CustomerWhoPlacedOrder
1
« key»
*
«BusinessEntity»
Order
+ «id» OrderID : int
+ ShipName : string
+ ShipAddress : string
+ ShipCity : string
+ ShipRegion : string
+ ShipPostalCode : string
+ OrderedDate : System.DateTime
1
+OrderLines
*
«BusinessEntity»
OrderLine
+ «id» ProductID : int
+ UnitPrice : decimal
+ Quantity : short
*
« key»
1
+TheProduct
«BusinessEntity»
Product
+ «id» ProductID : int
+ ProductName : string
+ UnitPrice : decimal
+ UnitsInStock : short
+ UnitsOnOrder : short
*
« key»
1
+TheSupplier
«BusinessEntity»
Customer
+ «id» SupplierID : int
+ CompanyName : string
+ Address : string
+ City : string
+ PostalCode : string
+ Region : string

FIG. 6B

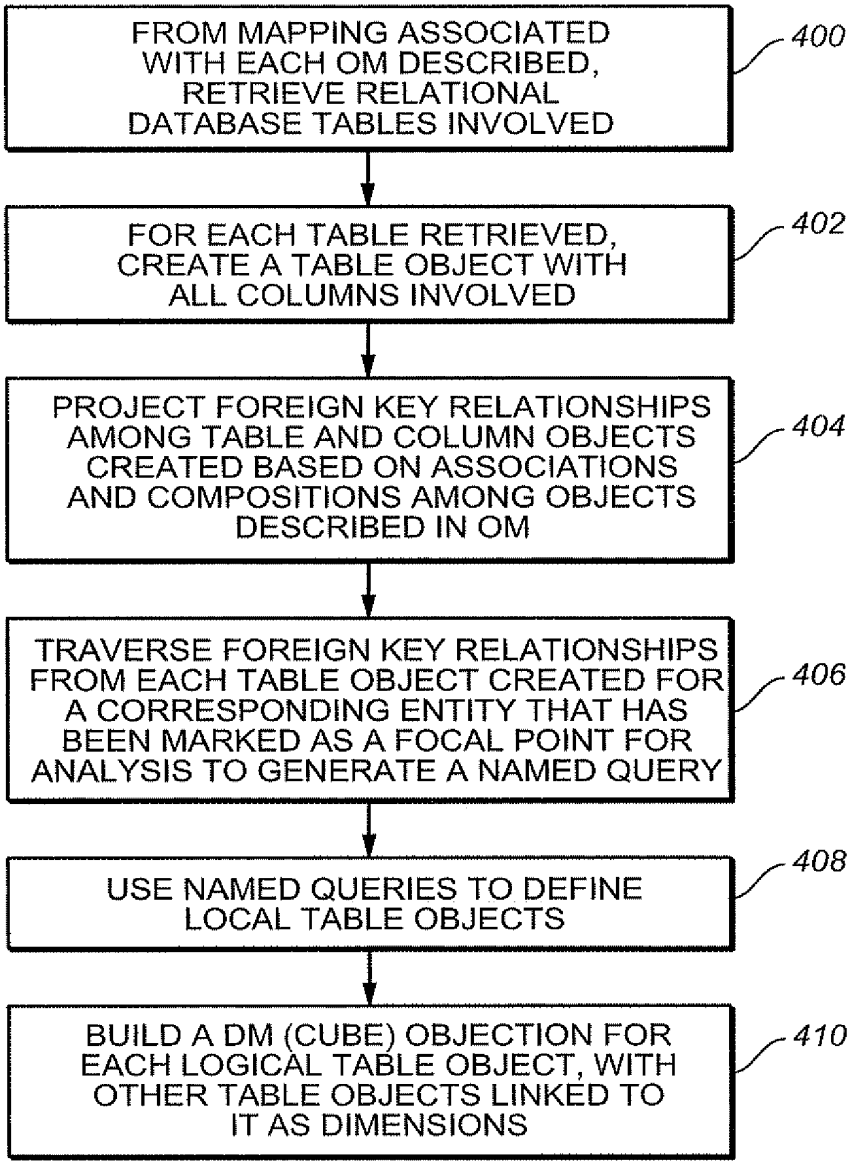

FROM MAPPING ASSOCIATED WITH EACH OM DESCRIBED, RETRIEVE RELATIONAL DATABASE TABLES INVOLVED
400
FOR EACH TABLE RETRIEVED, CREATE A TABLE OBJECT WITH ALL COLUMNS INVOLVED
402
PROJECT FOREIGN KEY RELATIONSHIPS AMONG TABLE AND COLUMN OBJECTS CREATED BASED ON ASSOCIATIONS AND COMPOSITIONS AMONG OBJECTS DESCRIBED IN OM
404
TRAVERSE FOREIGN KEY RELATIONSHIPS FROM EACH TABLE OBJECT CREATED FOR A CORRESPONDING ENTITY THAT HAS BEEN MARKED AS A FOCAL POINT FOR ANALYSIS TO GENERATE A NAMED QUERY
406
USE NAMED QUERIES TO DEFINE LOCAL TABLE OBJECTS
408
BUILD A DM (CUBE) OBJECTION FOR EACH LOGICAL TABLE OBJECT, WITH OTHER TABLE OBJECTS LINKED TO IT AS DIMENSIONS
410

FIG. 7

FIG. 8

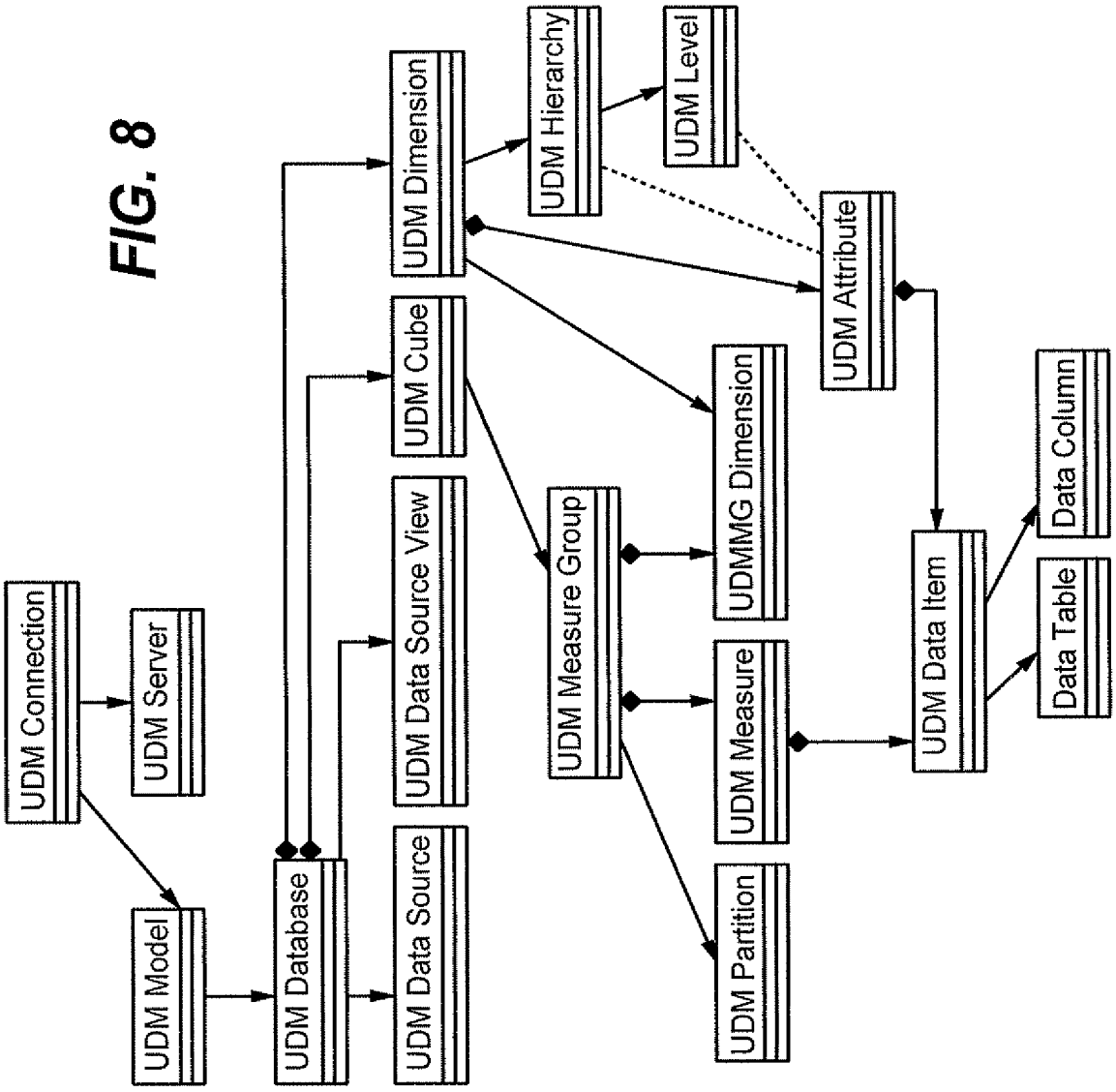
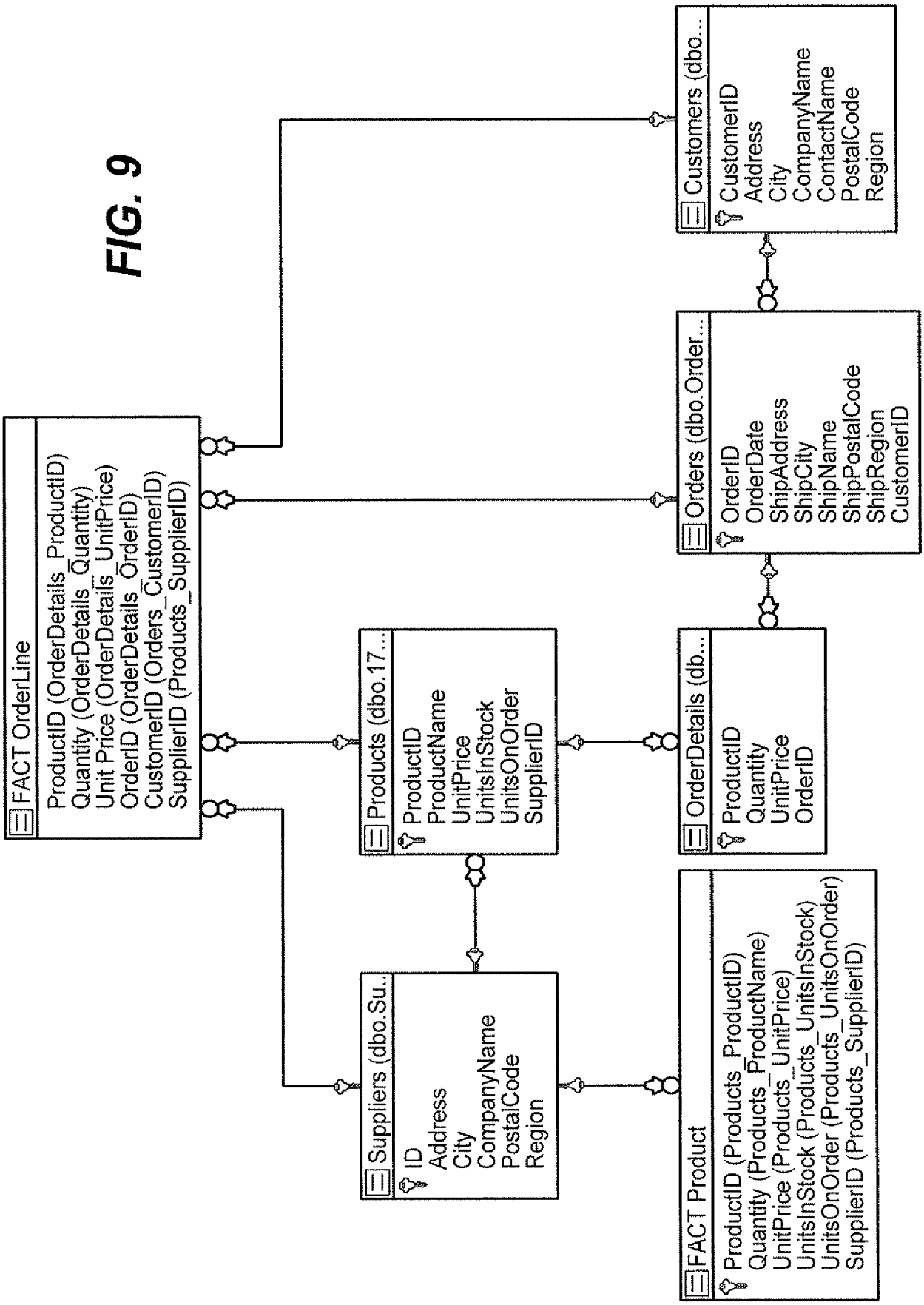

UDM Connection
UDM Server
UDM Model
UDM Database
UDM Data Source
UDM Data Source View
UDM Dimension
UDM Hierarchy
UDM Level
UDM Cube
UDM Measure Group
UDMMG Dimension
UDM Attribute
UDM Measure
UDM Partition
UDM Data Item
Data Column
Data Table

FIG. 9


FACT OrderLine
ProductID (OrderDetails_ProductID)
Quantity (OrderDetails_Quantity)
Unit Price (OrderDetails_UnitPrice)
OrderID (OrderDetails_OrderID)
CustomerID (Orders_CustomerID)
SupplierID (Products_SupplierID)
Customers (dbo...
CustomerID
Address
City
CompanyName
ContactName
PostalCode
Region
Orders (dbo.Order...
OrderID
OrderDate
ShipAddress
ShipCity
ShipName
ShipPostalCode
ShipRegion
CustomerID
Products (dbo.17...
ProductID
ProductName
UnitPrice
UnitsInStock
UnitsOnOrder
SupplierID
OrderDetails (db...
ProductID
Quantity
UnitPrice
OrderID
Suppliers (dbo.Su...
ID
Address
City
CompanyName
PostalCode
Region
FACT Product
ProductID (Products_ProductID)
Quantity (Products_ProductName)
UnitPrice (Products_UnitPrice)
UnitsInStock (Products_UnitsInStock)
UnitsOnOrder (Products_UnitsOnOrder)
SupplierID (Products_SupplierID)

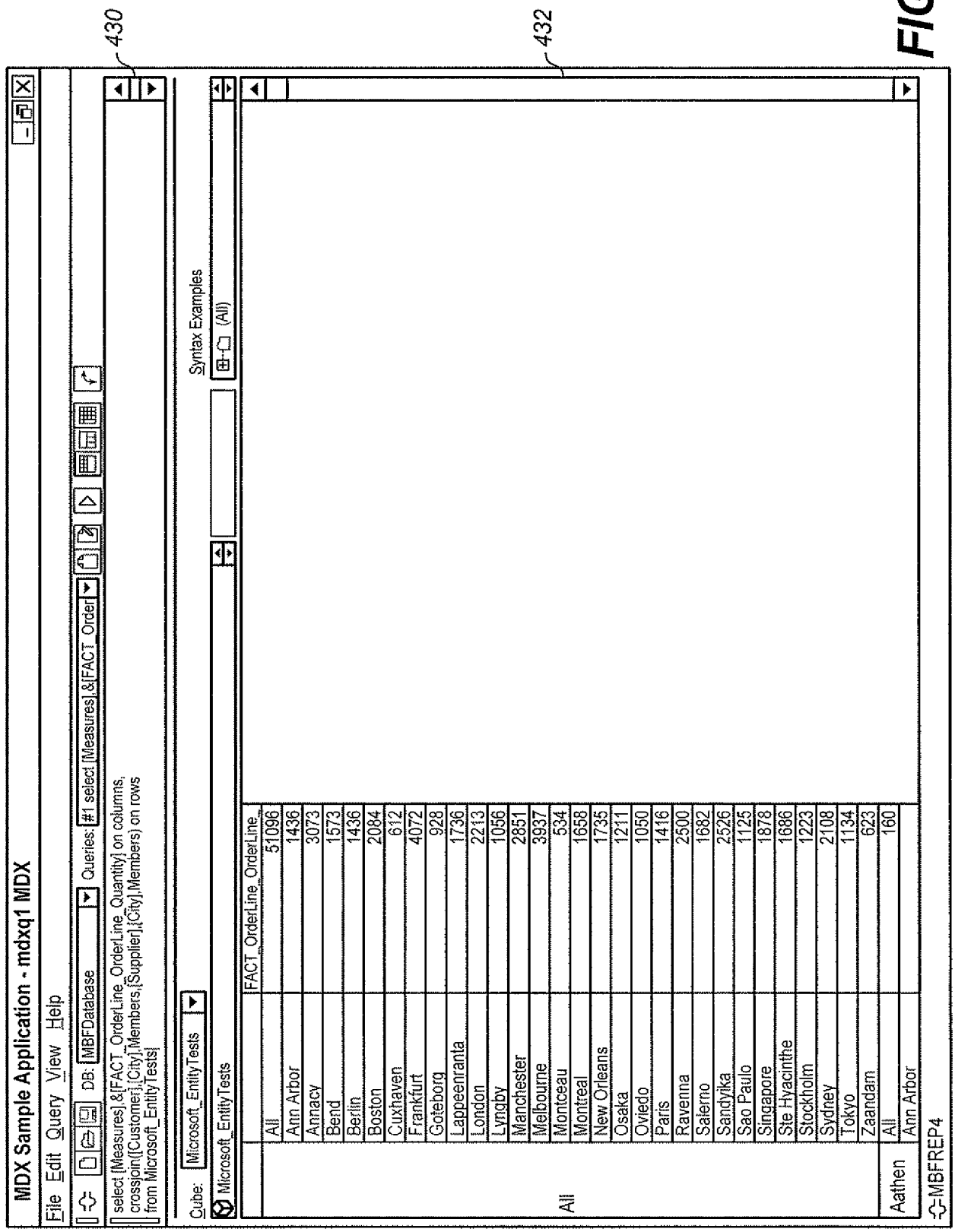

MDX Sample Application - mdxq1 MDX
File Edit Query View Help
DB: MBFDatabase
Queries: #1 select [Measures].&[FACT_Order
select [Measures].&[FACT_OrderLine_OrderLine_Quantity] on columns,
crossjoin([Customer].[City].Members,[Supplier].[City].Members) on rows
from Microsoft_EntityTests]
Cube: Microsoft_EntityTests
Syntax Examples
Microsoft_EntityTests
(All)
430
432
All
FACT_OrderLine_OrderLine_
All 51096
Ann Arbor 1436
Annacy 3073
Bend 1573
Berlin 1436
Boston 2084
Cuxhaven 612
Frankfurt 4072
Goteborg 928
Lappeenranta 1736
London 2213
Lyngby 1056
Manchester 2851
Melbourne 3937
Montceau 534
Montreal 1658
New Orleans 1735
Osaka 1211
Oviedo 1050
Paris 1416
Ravenna 2500
Salerno 1682
Sandvika 2526
Sao Paulo 1125
Singapore 1878
Ste Hyacinthe 1686
Stockholm 1223
Sydney 2108
Tokyo 1134
Zaandam 623
Aathen All 160
Ann Arbor
MBFREP4

FIG. 10

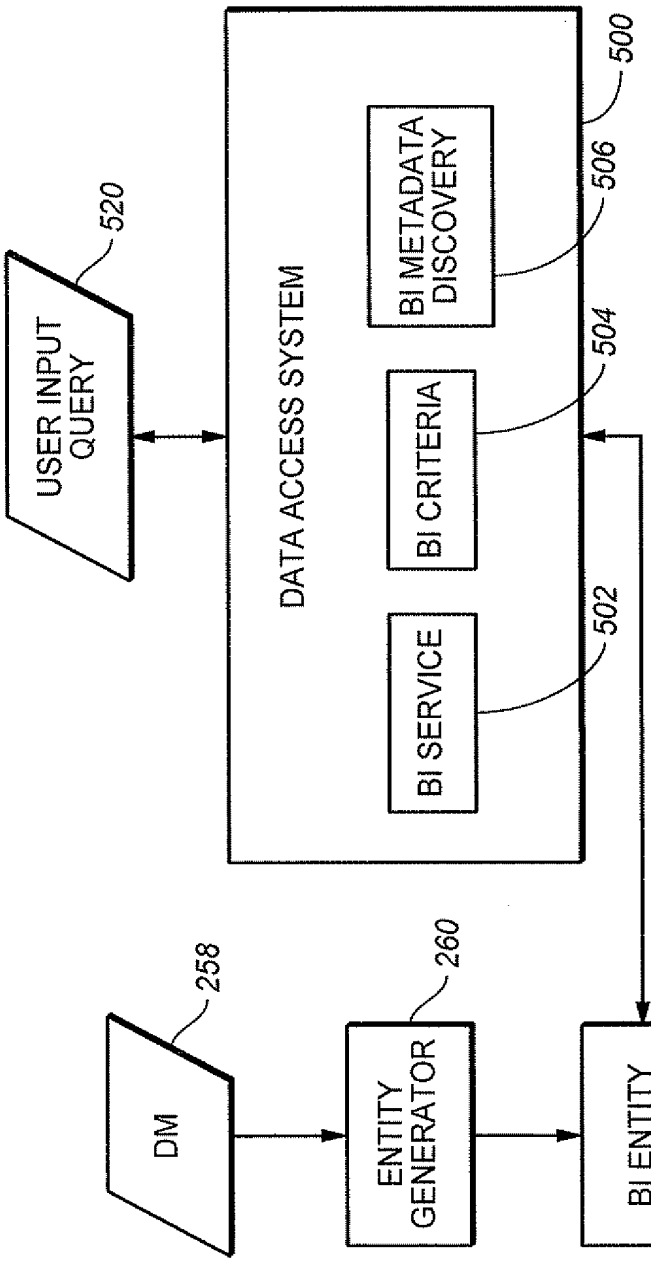

USER INPUT QUERY
520
DATA ACCESS SYSTEM
500
BI METADATA DISCOVERY
506
BI CRITERIA
504
BI SERVICE
502
DM
258
ENTITY GENERATOR
260
BI ENTITY
262

FIG. 11A

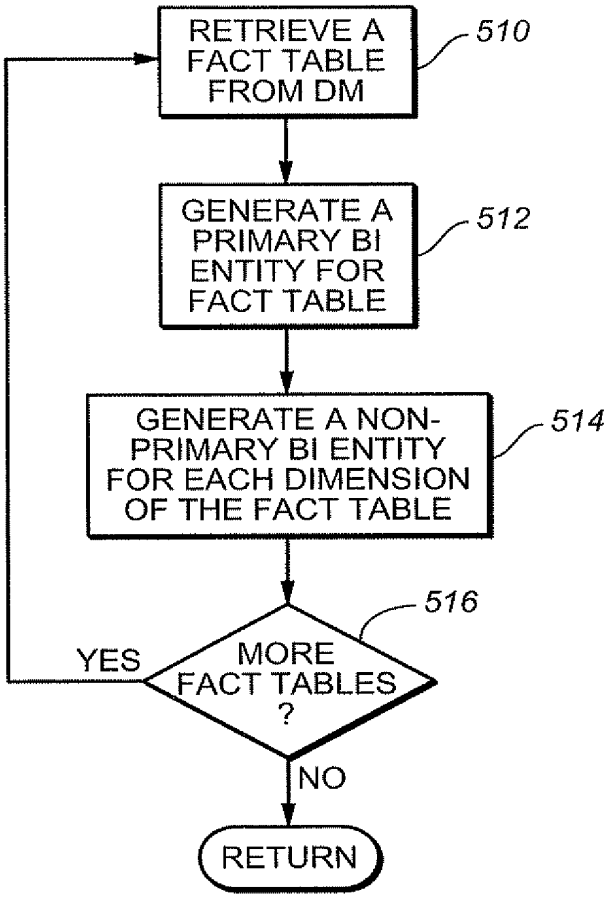

RETRIEVE A FACT TABLE FROM DM
510
GENERATE A PRIMARY BI ENTITY FOR FACT TABLE
512
GENERATE A NON-PRIMARY BI ENTITY FOR EACH DIMENSION OF THE FACT TABLE
514
516
MORE FACT TABLES ?
YES
NO
RETURN

FIG. 11B

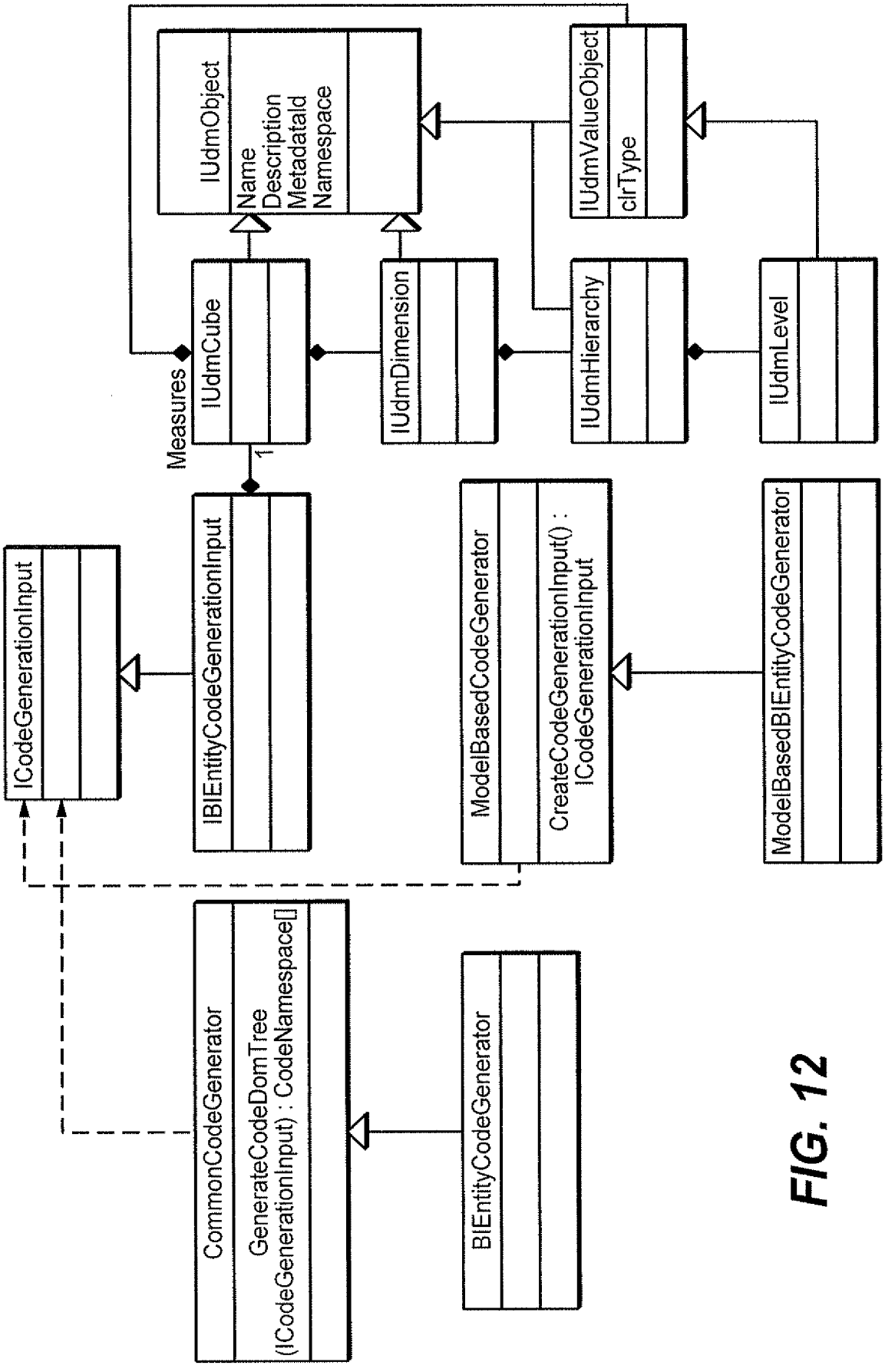

IUdmObject
Name
Description
MetadataId
Namespace
IUdmValueObject
clrType
IUdmCube
IUdmDimension
IUdmHierarchy
IUdmLevel
Measures
1
ICodeGenerationInput
IBIEntityCodeGenerationInput
ModelBasedCodeGenerator
CreateCodeGenerationInput() : ICodeGenerationInput
ModelBasedBIEntityCodeGenerator
CommonCodeGenerator
GenerateCodeDomTree (ICodeGenerationInput) : CodeNamespace[]
BIEntityCodeGenerator

FIG. 12

```
public interface ICodeGenerator
{
        /// <summary>
        /// The method returns a GeneratedCodeWithWritableArePositions.
        /// </summary>
        /// <param name="input">ICodeGenerationInput defines the data needed for cod-
generation.</param>
        /// <returns>The GeneratedCodeWithWritablePositions.</returns>
        GeneratedCodeWithWritableAreaPositions
GeneratedCode(ICodeGenerationInput input);
}

public interface IModelBasedCodeGenerator
{

        /// <summary>
        /// The method reads the store and creates the ICodeGenerationInput needed for
code generation.
        /// </summary>
        /// <returns></returns>
        ICodeGenerationInput CreateCodeGenerationInput();

}
```

FIG. 13

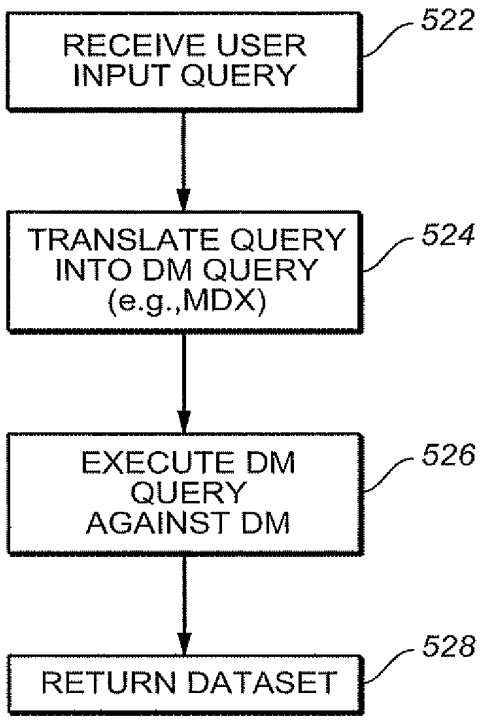


FIG. 14

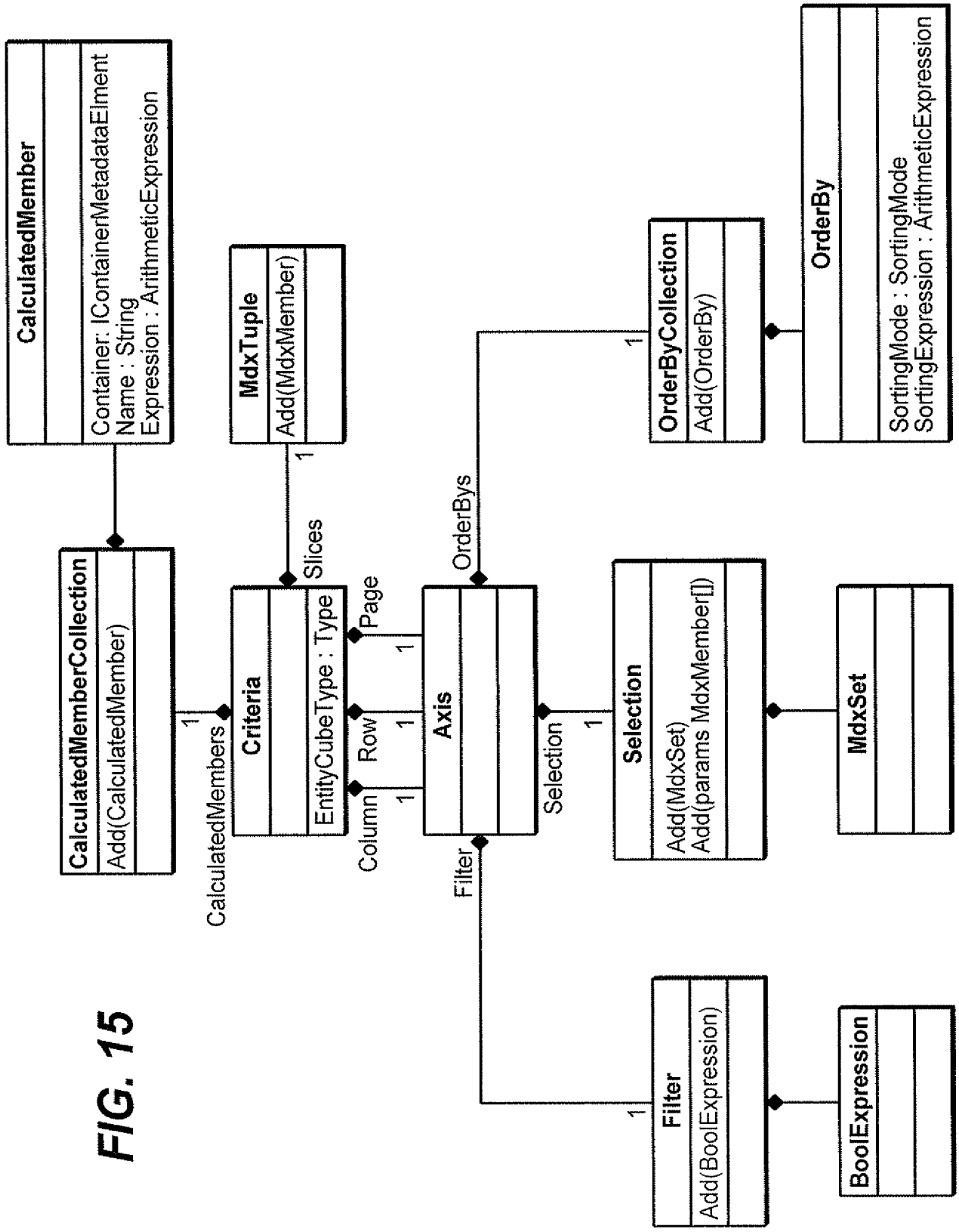

CalculatedMember
Container: IContainerMetadataElment
Name : String
Expression : ArithmeticExpression
CalculatedMemberCollection
Add(CalculatedMember)
CalculatedMembers
Criteria
EntityCubeType : Type
Slices
MdxTuple
Add(MdxMember)
Page
Row
Column
Axis
OrderBys
OrderByCollection
Add(OrderBy)
OrderBy
SortingMode : SortingMode
SortingExpression : ArithmeticExpression
Selection
Add(MdxSet)
Add(params MdxMember[])
MdxSet
Filter
Add(BoolExpression)
BoolExpression

FIG. 15

FIG. 16B

FIG. 16A

FIG. 16

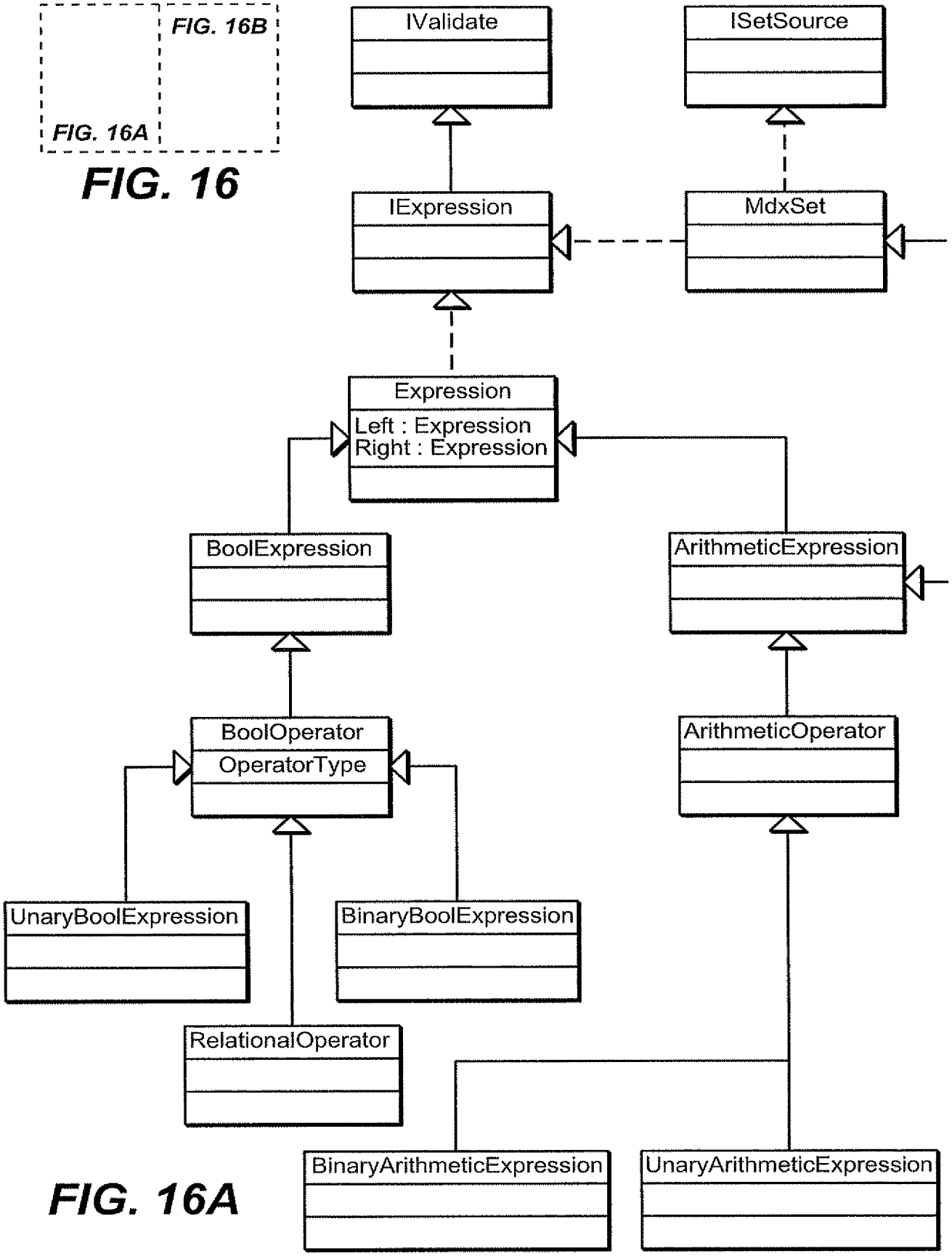
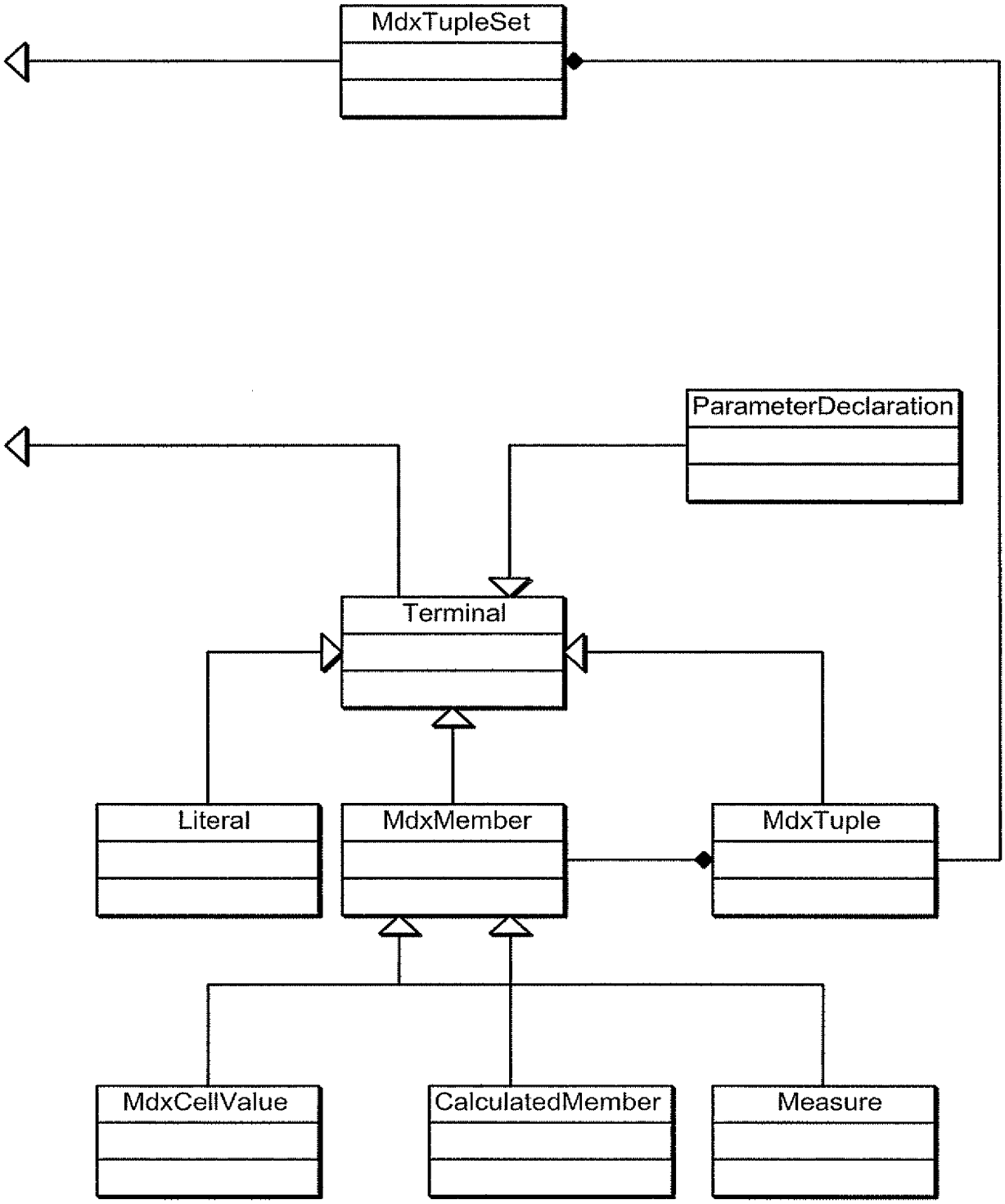


FIG. 16A

FIG. 16B


MdxTupleSet
ParameterDeclaration
Terminal
Literal
MdxMember
MdxTuple
MdxCellValue
CalculatedMember
Measure

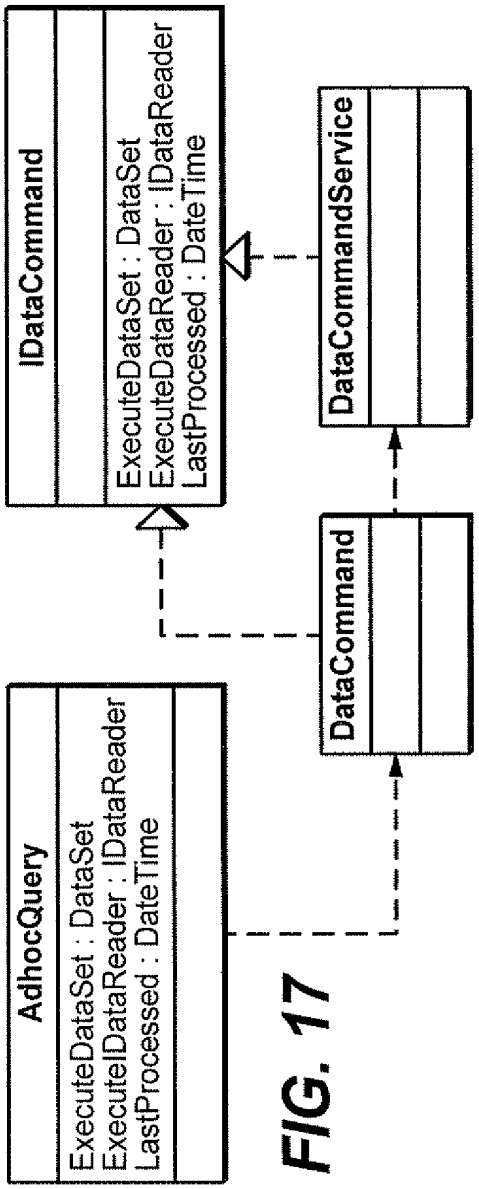

IDataCommand
ExecuteDataSet : DataSet
ExecuteDataReader : IDataReader
LastProcessed : DateTime
DataCommandService
DataCommand
AdhocQuery
ExecuteDataSet : DataSet
ExecuteIDataReader : IDataReader
LastProcessed : DateTime

FIG. 17

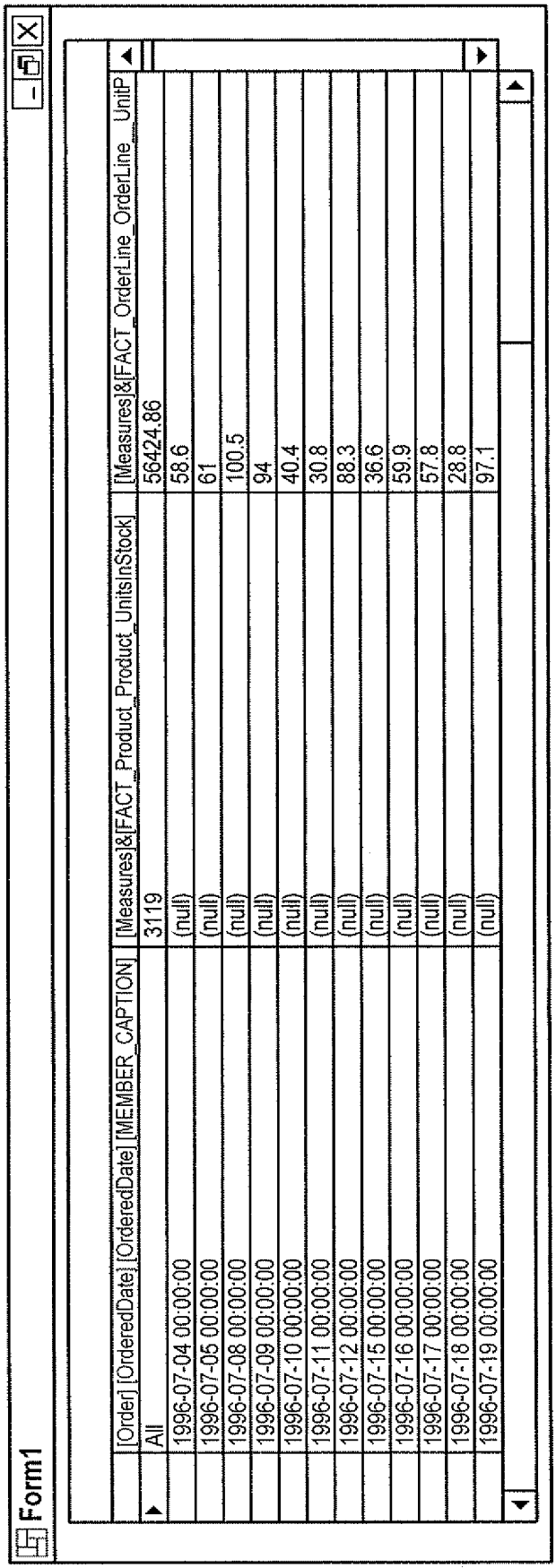

Form1
[Order] [OrderedDate] [OrderedDate] [MEMBER_CAPTION] [Measures]&[FACT_Product_Product_UnitsInStock] [Measures]&[FACT_OrderLine_OrderLine_UnitP
All 3119 56424.86
1996-07-04 00:00:00 (null) 58.6
1996-07-05 00:00:00 (null) 61
1996-07-08 00:00:00 (null) 100.5
1996-07-09 00:00:00 (null) 94
1996-07-10 00:00:00 (null) 40.4
1996-07-11 00:00:00 (null) 30.8
1996-07-12 00:00:00 (null) 88.3
1996-07-15 00:00:00 (null) 36.6
1996-07-16 00:00:00 (null) 59.9
1996-07-17 00:00:00 (null) 57.8
1996-07-18 00:00:00 (null) 28.8
1996-07-19 00:00:00 (null) 97.1

FIG. 18

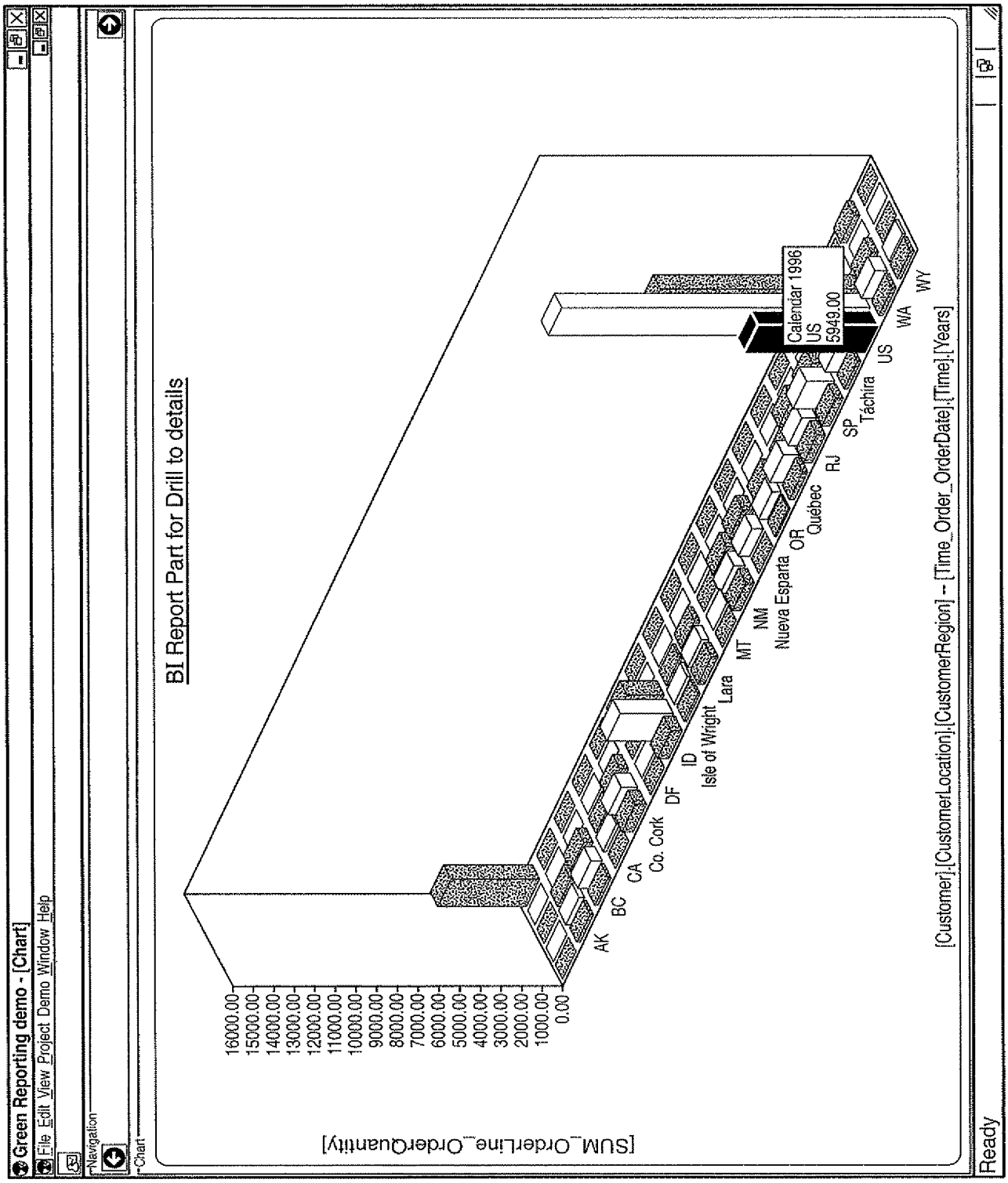

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
BI Report Part for Drill to details
[SUM_OrderLine_OrderQuantity]
16000.00
15000.00
14000.00
13000.00
12000.00
11000.00
10000.00
9000.00
8000.00
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
AK
BC
CA
Co. Cork
DF
ID
Isle of Wright
Lara
MT
NM
Nueva Esparta
OR
Québec
RJ
SP
Táchira
US
WA
WY
Calendar 1996
US
5949.00
[Customer].[CustomerLocation].[CustomerRegion] - [Time_Order_OrderDate].[Time].[Years]
Ready

FIG. 19

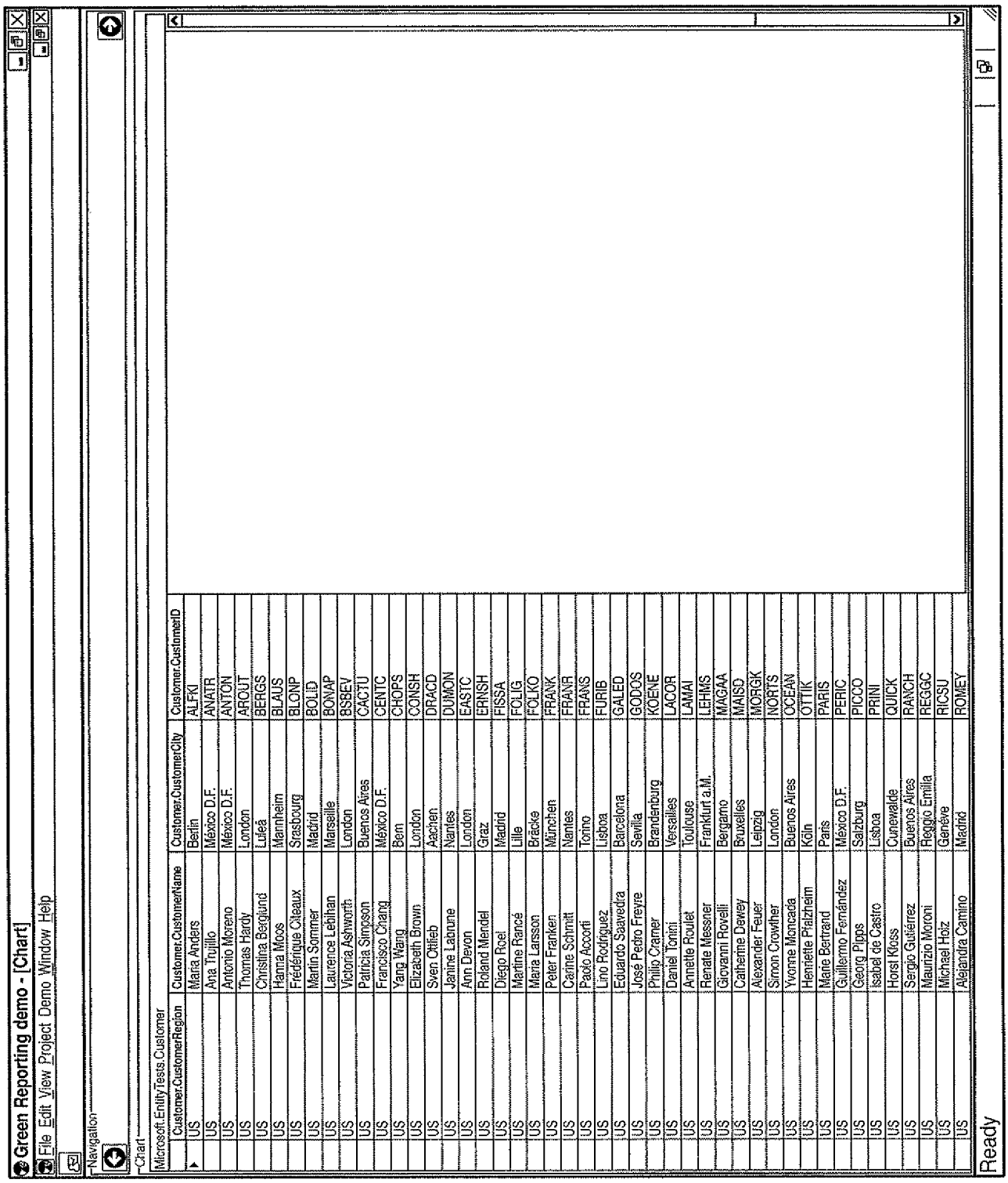

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
Microsoft.EntityTests.Customer
Customer.CustomerRegion
Customer.CustomerName
Customer.CustomerCity
Customer.CustomerID
US Maria Anders Berlin ALFKI
US Ana Trujillo México D.F. ANATR
US Antonio Moreno México D.F. ANTON
US Thomas Hardy London AROUT
US Christina Berglund Luleå BERGS
US Hanna Moos Mannheim BLAUS
US Frédérique Citeaux Strasbourg BLONP
US Martin Sommer Madrid BOLID
US Laurence Lebihan Marseille BONAP
US Victoria Ashworth London BSBEV
US Patricia Simpson Buenos Aires CACTU
US Francisco Chang México D.F. CENTC
US Yang Wang Bern CHOPS
US Elizabeth Brown London CONSH
US Sven Ottlieb Aachen DRACD
US Janine Labrune Nantes DUMON
US Ann Devon London EASTC
US Roland Mendel Graz ERNSH
US Diego Roel Madrid FISSA
US Martine Rancé Lille FOLIG
US Maria Larsson Bräcke FOLKO
US Peter Franken München FRANK
US Carine Schmitt Nantes FRANR
US Paolo Accorti Torino FRANS
US Lino Rodriguez Lisboa FURIB
US Eduardo Saavedra Barcelona GALED
US José Pedro Freyre Sevilla GODOS
US Philip Cramer Brandenburg KOENE
US Daniel Tonini Versailles LACOR
US Annette Roulet Toulouse LAMAI
US Renate Messner Frankfurt a.M. LEHMS
US Giovanni Rovelli Bergamo MAGAA
US Catherine Dewey Bruxelles MAISD
US Alexander Feuer Leipzig MORGK
US Simon Crowther London NORTS
US Yvonne Moncada Buenos Aires OCEAN
US Henriette Pfalzheim Köln OTTIK
US Marie Bertrand Paris PARIS
US Guillermo Fernández México D.F. PERIC
US Georg Pipps Salzburg PICCO
US Isabel de Castro Lisboa PRINI
US Horst Kloss Cunewalde QUICK
US Sergio Gutiérrez Buenos Aires RANCH
US Maurizio Moroni Reggio Emilia REGGC
US Michael Holz Genève RICSU
US Alejandra Camino Madrid ROMEY
Ready

FIG. 20

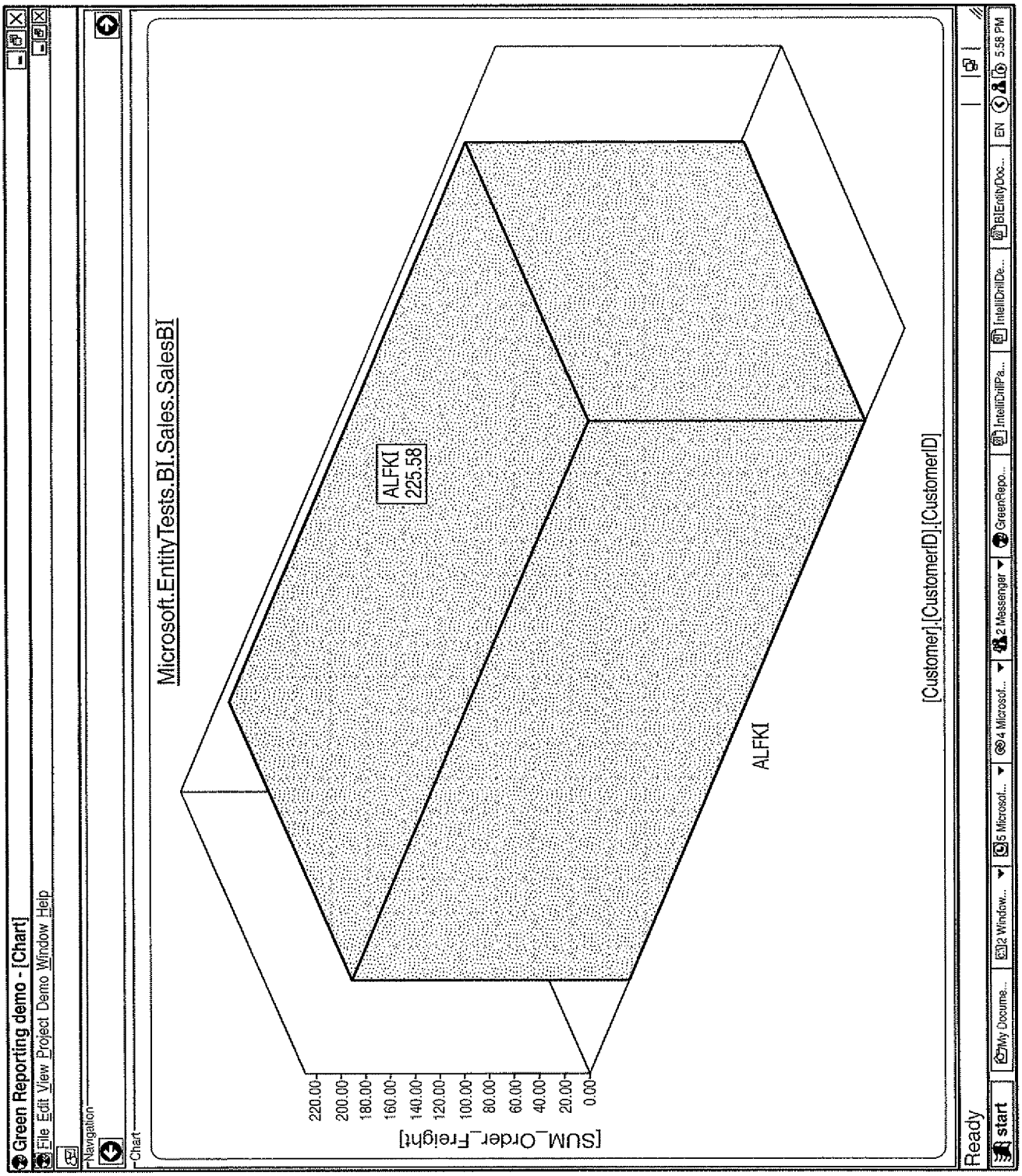

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
Microsoft.EntityTests.BI.Sales.SalesBI
ALFKI
225.58
[SUM_Order_Freight]
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
ALFKI
[Customer].[CustomerID].[CustomerID]
Ready
start
5:58 PM

FIG. 21

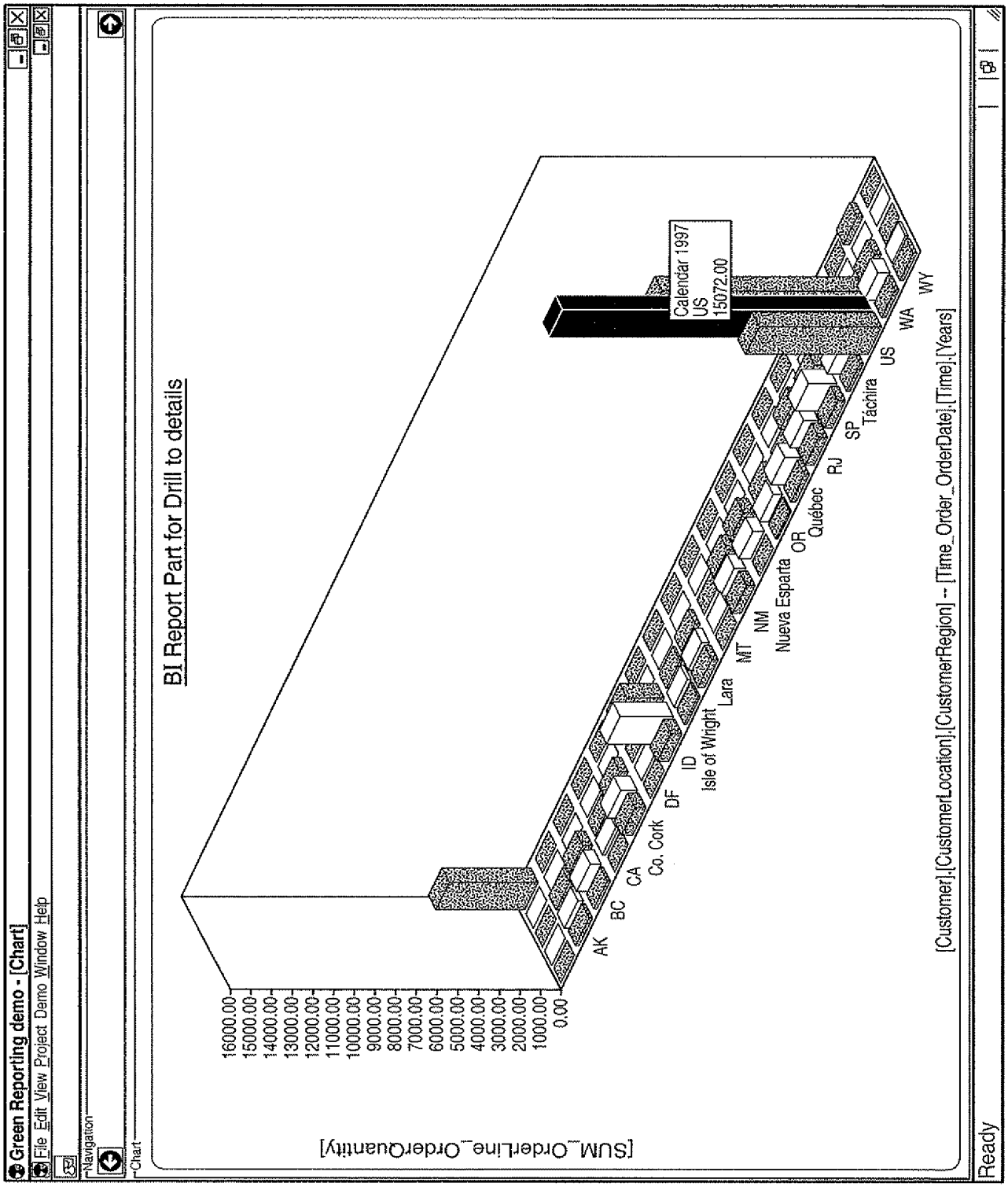

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
BI Report Part for Drill to details
[SUM_OrderLine_OrderQuantity]
16000.00
15000.00
14000.00
13000.00
12000.00
11000.00
10000.00
9000.00
8000.00
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
Calendar 1997
US
15072.00
AK
BC
CA
Co. Cork
DF
ID
Isle of Wright
Lara
MT
NM
Nueva Esparta
OR
Québec
RJ
SP
Táchira
US
WA
WY
[Customer].[CustomerLocation].[CustomerRegion] - [Time_Order_OrderDate].[Time].[Years]
Ready

FIG. 22

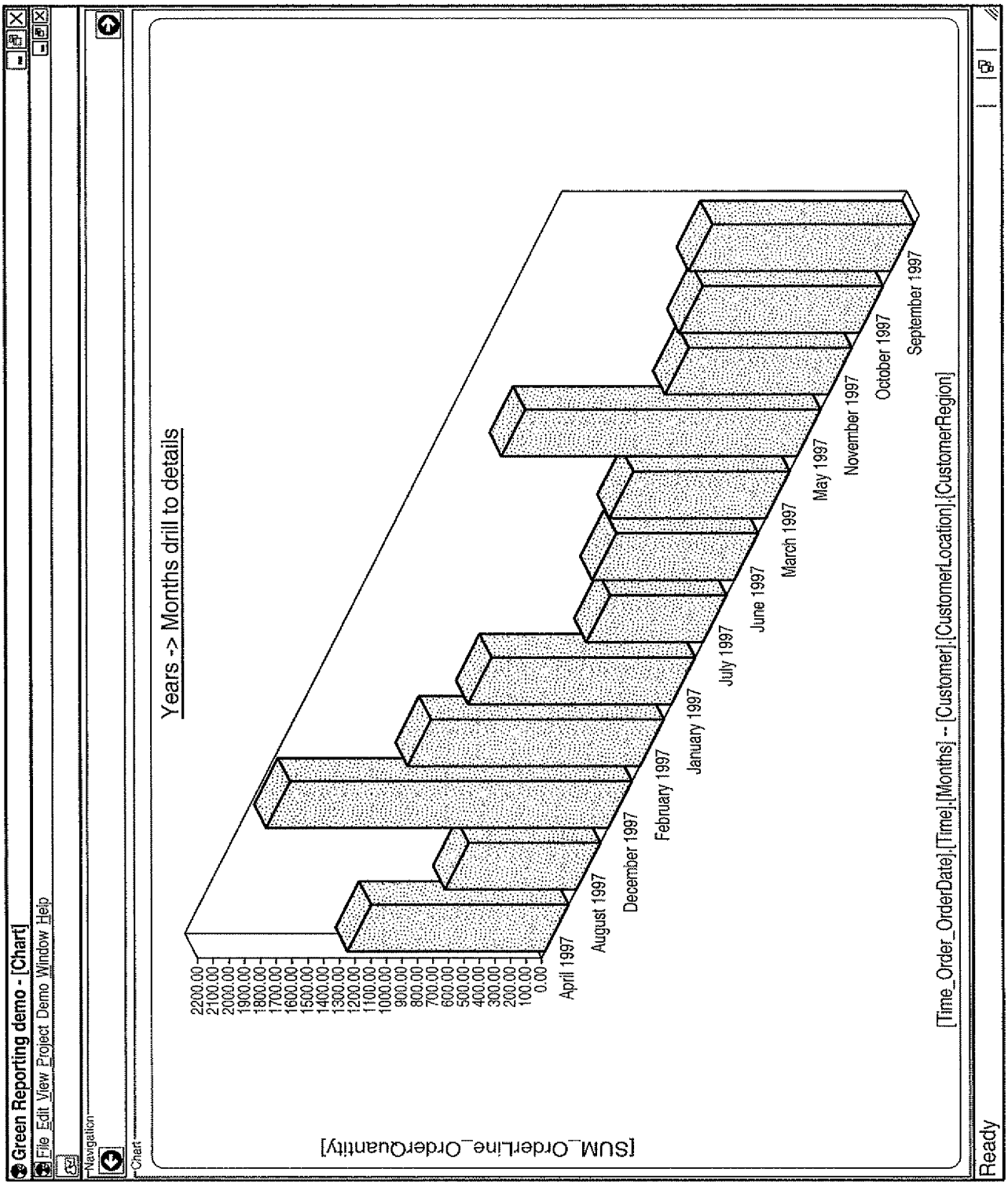

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
Years -> Months drill to details
[SUM_OrderLine_OrderQuantity]
2200.00
2100.00
2000.00
1900.00
1800.00
1700.00
1600.00
1500.00
1400.00
1300.00
1200.00
1100.00
1000.00
900.00
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
April 1997
August 1997
December 1997
February 1997
January 1997
July 1997
June 1997
March 1997
May 1997
November 1997
October 1997
September 1997
[Time_Order_OrderDate].[Time].[Months] -- [Customer].[CustomerLocation].[CustomerRegion]
Ready

FIG. 23

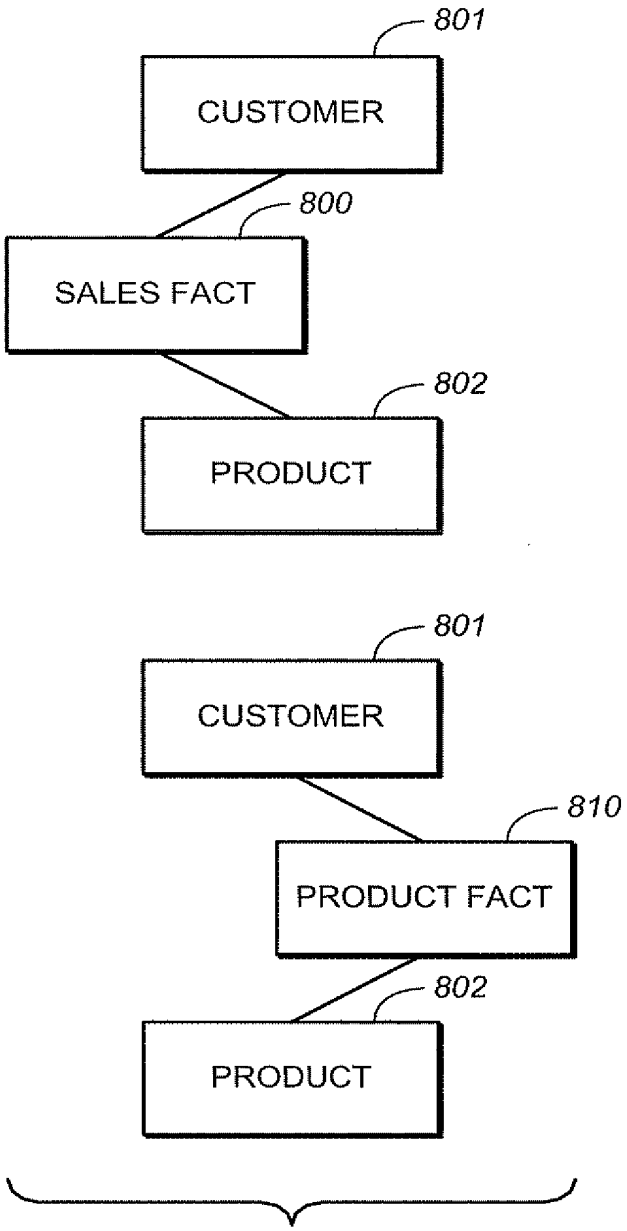

801
CUSTOMER
800
SALES FACT
802
PRODUCT
801
CUSTOMER
810
PRODUCT FACT
802
PRODUCT

FIG. 24

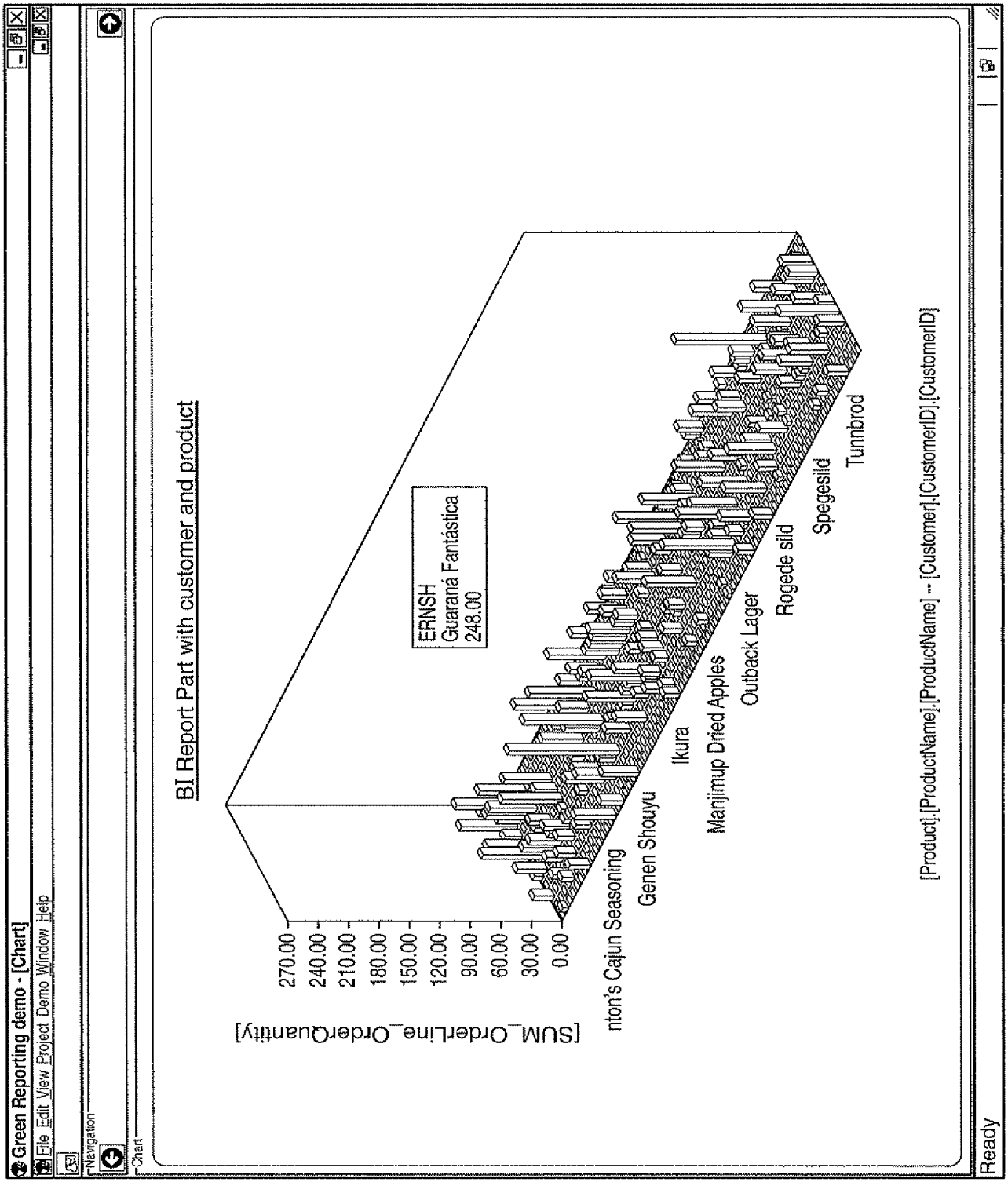

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
BI Report Part with customer and product
ERNSH
Guaraná Fantástica
248.00
[SUM_OrderLine_OrderQuantity]
270.00
240.00
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
nton's Cajun Seasoning
Genen Shouyu
Ikura
Manjimup Dried Apples
Outback Lager
Rogede sild
Spegesild
Tunnbrod
[Product].[ProductName].[ProductName] -- [Customer].[CustomerID].[CustomerID]
Ready

FIG. 25

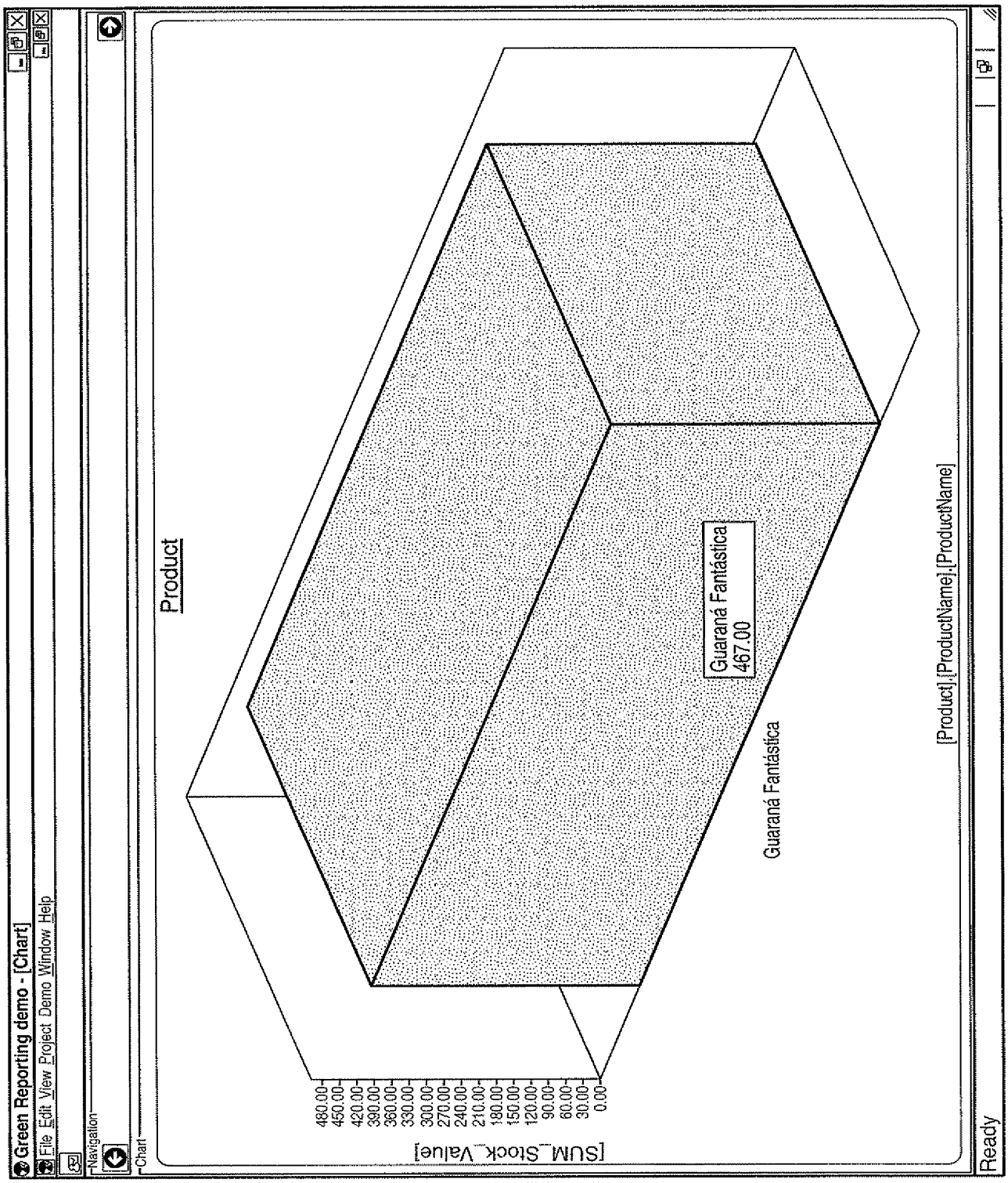

Green Reporting demo - [Chart]
File Edit View Project Demo Window Help
Navigation
Chart
Product
[SUM_Stock_Value]
460.00
450.00
420.00
390.00
360.00
330.00
300.00
270.00
240.00
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
Guaraná Fantástica
467.00
Guaraná Fantástica
[Product].[ProductName].[ProductName]
Ready

FIG. 26

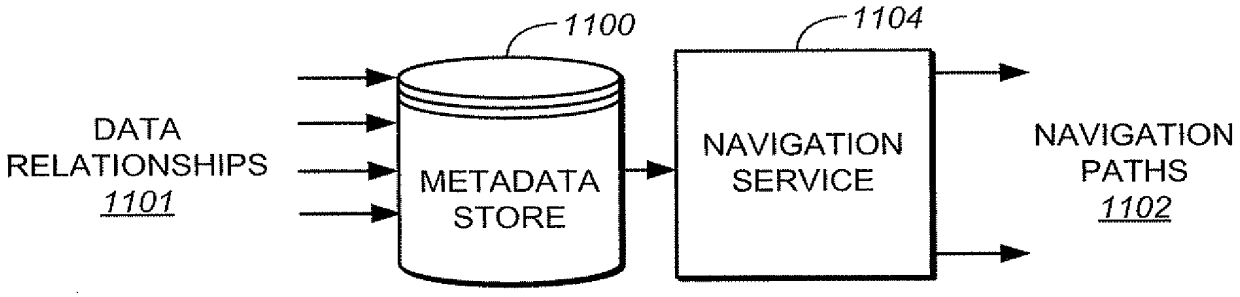

1100
1104
DATA RELATIONSHIPS 1101
METADATA STORE
NAVIGATION SERVICE
NAVIGATION PATHS 1102

FIG. 27

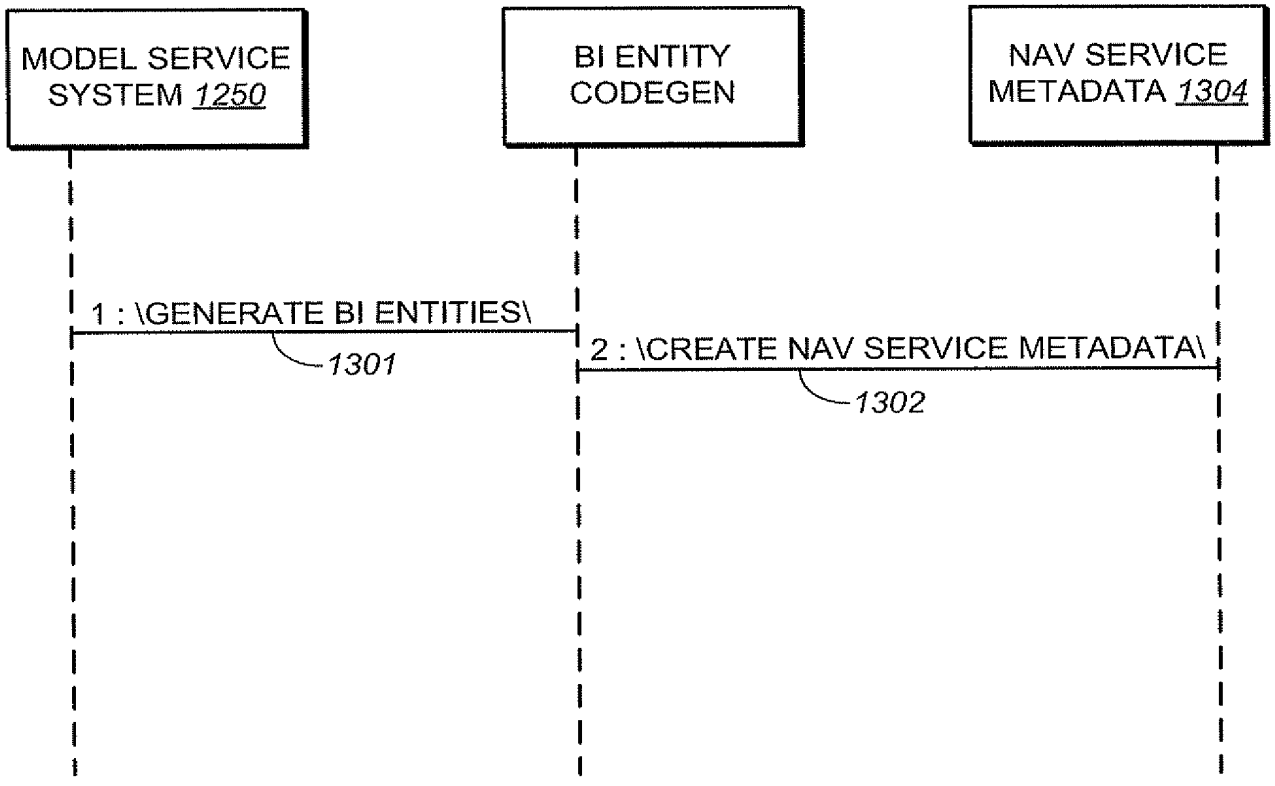

MODEL SERVICE SYSTEM 1250
BI ENTITY CODEGEN
NAV SERVICE METADATA 1304
1 : \GENERATE BI ENTITIES\
1301
2 : \CREATE NAV SERVICE METADATA\
1302

FIG. 28

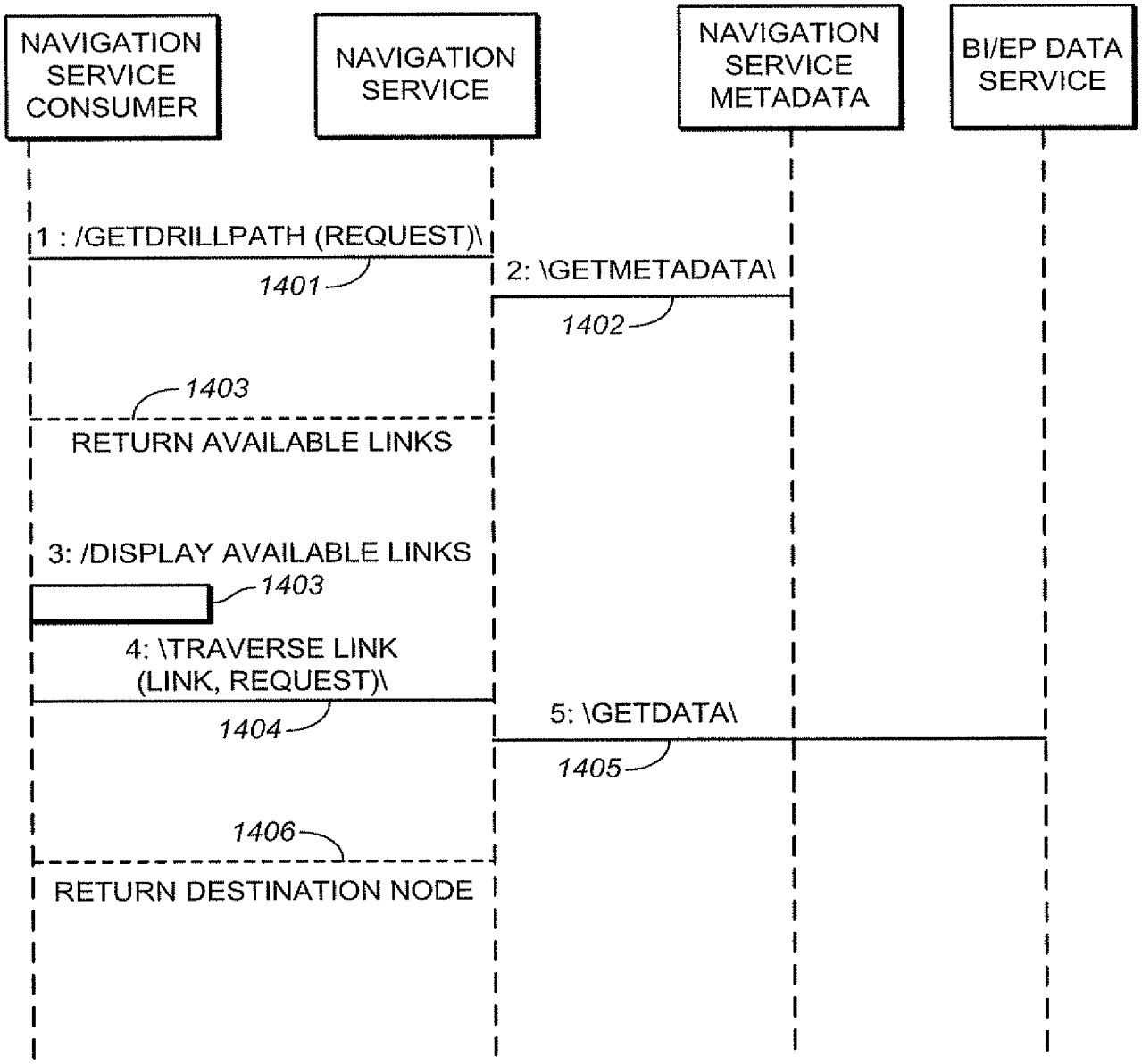

NAVIGATION SERVICE CONSUMER
NAVIGATION SERVICE
NAVIGATION SERVICE METADATA
BI/EP DATA SERVICE
1 : /GETDRILLPATH (REQUEST)\
1401
2: \GETMETADATA\
1402
1403
RETURN AVAILABLE LINKS
3: /DISPLAY AVAILABLE LINKS
1403
4: \TRAVERSE LINK (LINK, REQUEST)\
1404
5: \GETDATA\
1405
1406
RETURN DESTINATION NODE

FIG. 29

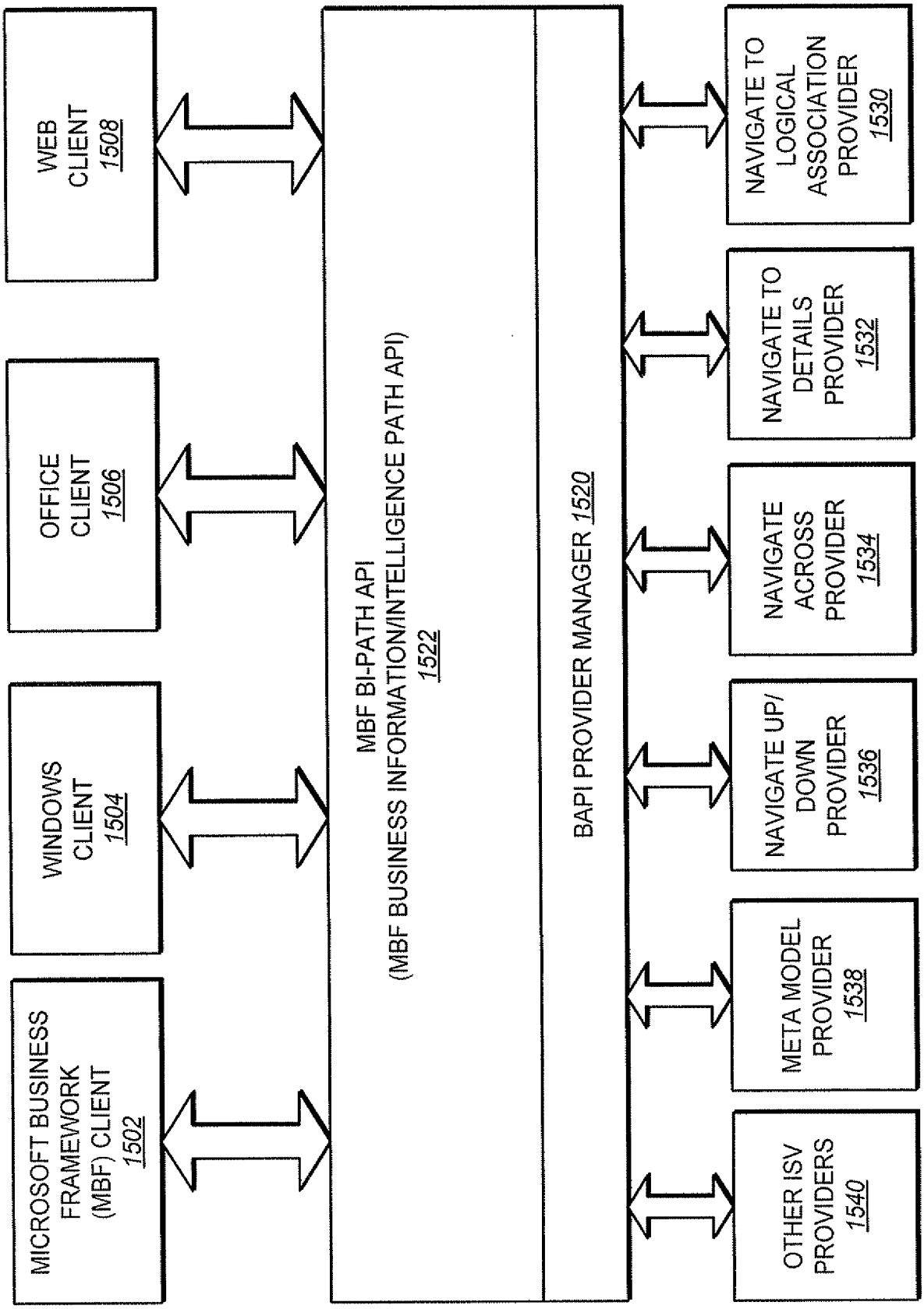

WEB CLIENT 1508
OFFICE CLIENT 1506
WINDOWS CLIENT 1504
MICROSOFT BUSINESS FRAMEWORK (MBF) CLIENT 1502
MBF BI-PATH API
(MBF BUSINESS INFORMATION/INTELLIGENCE PATH API)
1522
BAPI PROVIDER MANAGER 1520
NAVIGATE TO LOGICAL ASSOCIATION PROVIDER 1530
NAVIGATE TO DETAILS PROVIDER 1532
NAVIGATE ACROSS PROVIDER 1534
NAVIGATE UP/ DOWN PROVIDER 1536
META MODEL PROVIDER 1538
OTHER ISV PROVIDERS 1540

FIG. 30

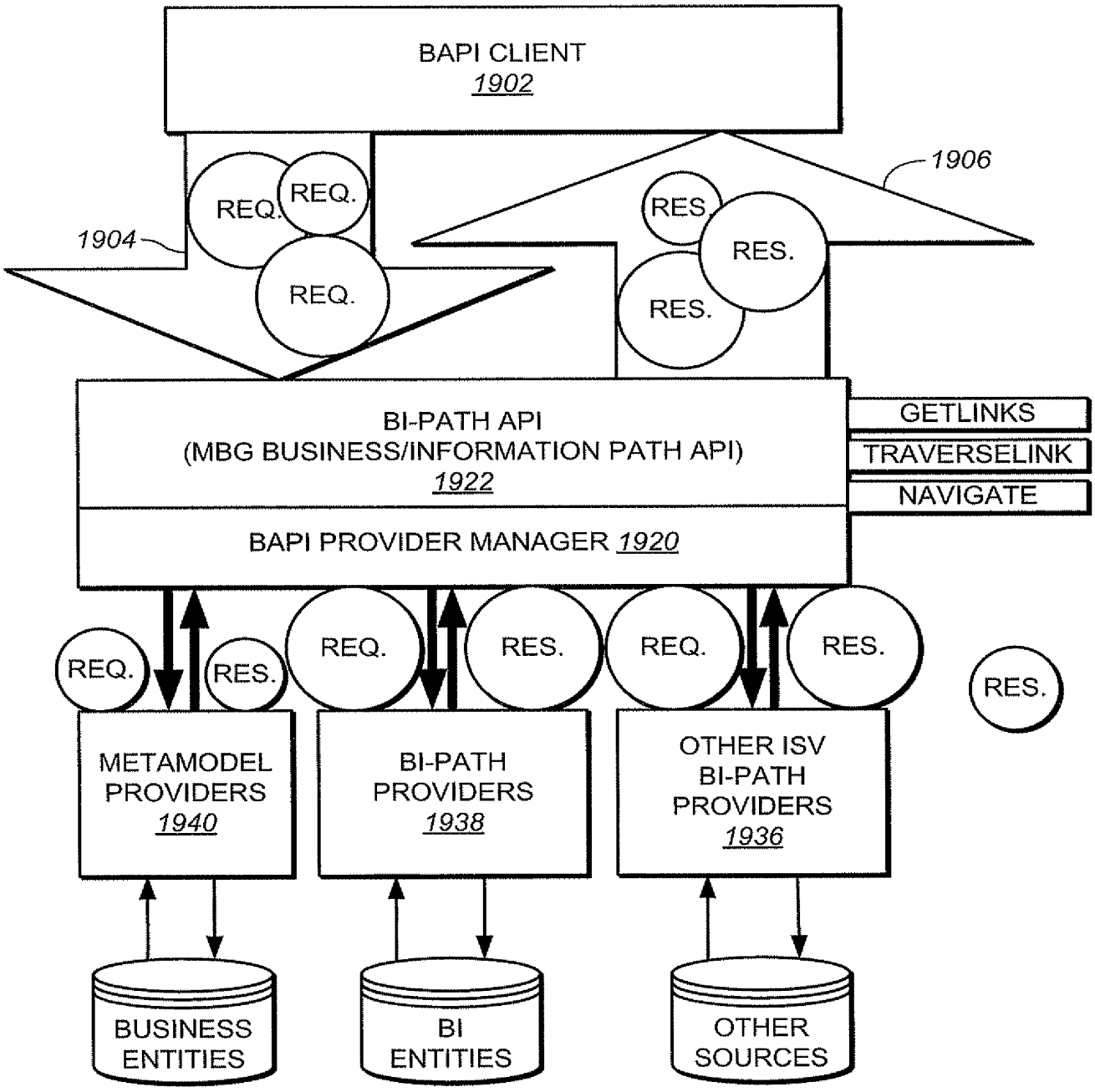

BAPI CLIENT
1902
1904
1906
REQ.
REQ.
REQ.
RES.
RES.
RES.
BI-PATH API
(MBG BUSINESS/INFORMATION PATH API)
1922
GETLINKS
TRAVERSELINK
NAVIGATE
BAPI PROVIDER MANAGER 1920
REQ.
RES.
REQ.
RES.
REQ.
RES.
RES.
METAMODEL PROVIDERS
1940
BI-PATH PROVIDERS
1938
OTHER ISV BI-PATH PROVIDERS
1936
BUSINESS ENTITIES
BI ENTITIES
OTHER SOURCES

FIG. 31

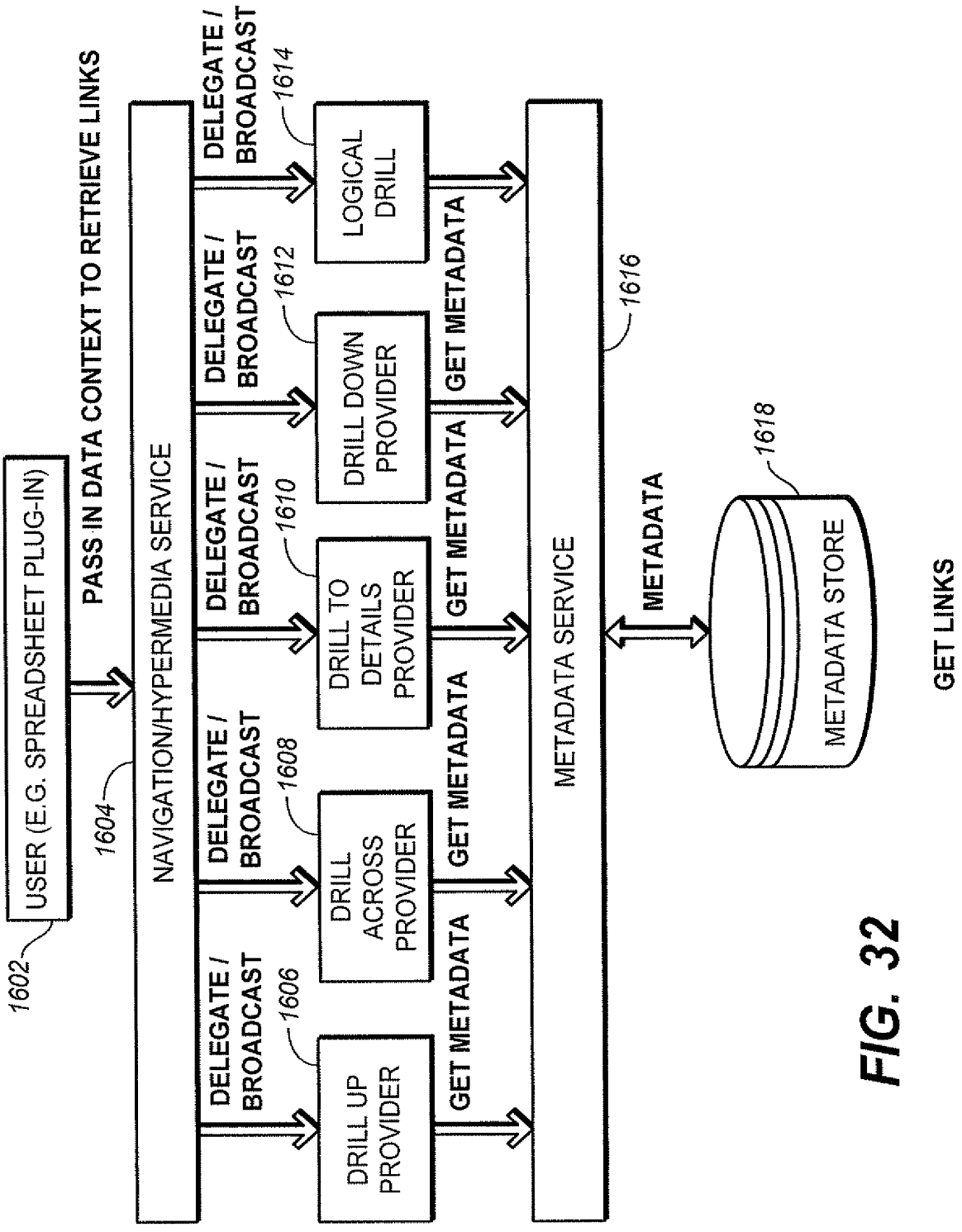

USER (E.G. SPREADSHEET PLUG-IN)
1602
PASS IN DATA CONTEXT TO RETRIEVE LINKS
NAVIGATION/HYPERMEDIA SERVICE
1604
DELEGATE / BROADCAST
1606
DRILL UP PROVIDER
GET METADATA
DELEGATE / BROADCAST
1608
DRILL ACROSS PROVIDER
GET METADATA
DELEGATE / BROADCAST
1610
DRILL TO DETAILS PROVIDER
GET METADATA
DELEGATE / BROADCAST
1612
DRILL DOWN PROVIDER
GET METADATA
DELEGATE / BROADCAST
1614
LOGICAL DRILL
METADATA SERVICE
1616
METADATA
METADATA STORE
1618
GET LINKS

FIG. 32

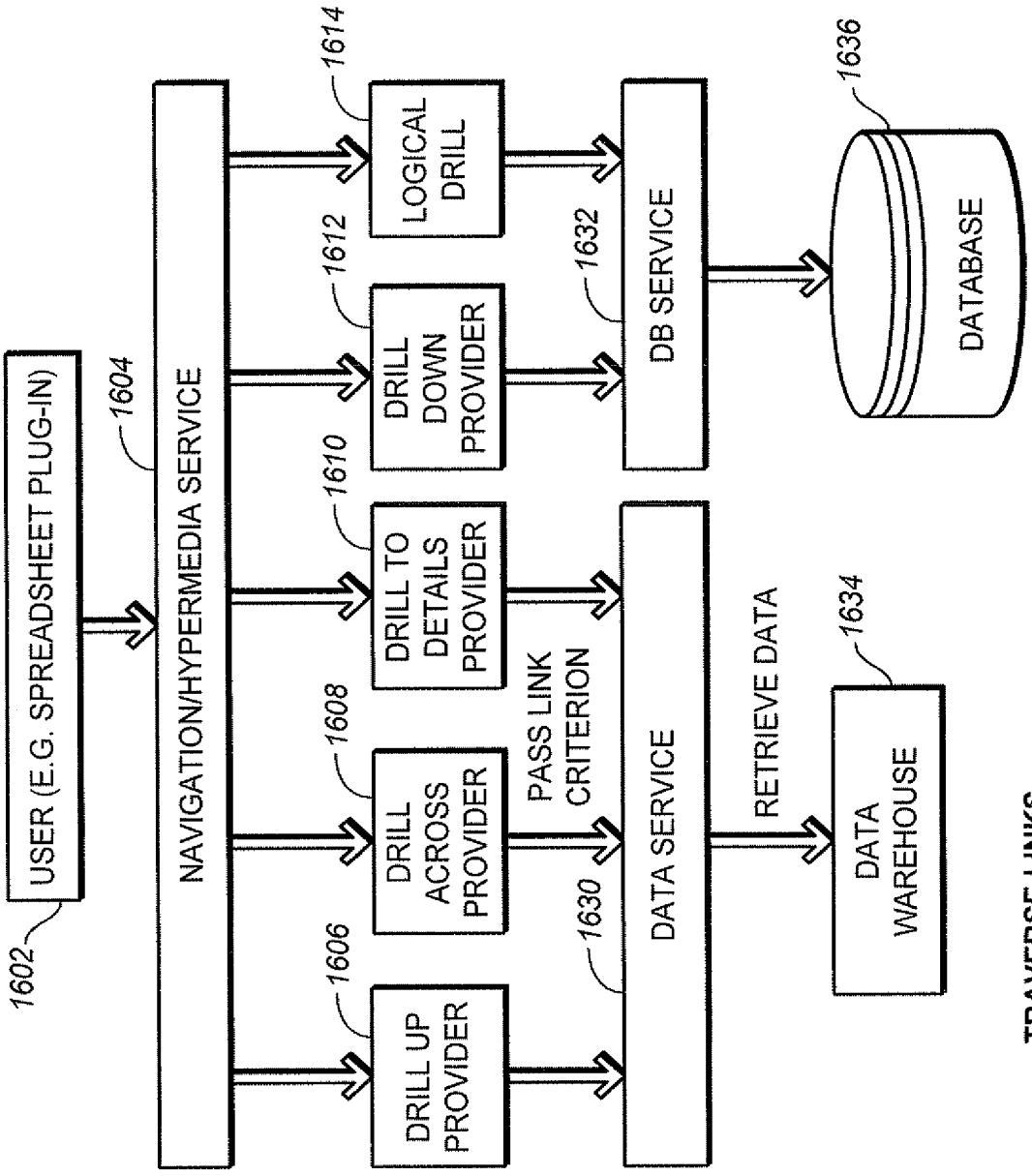
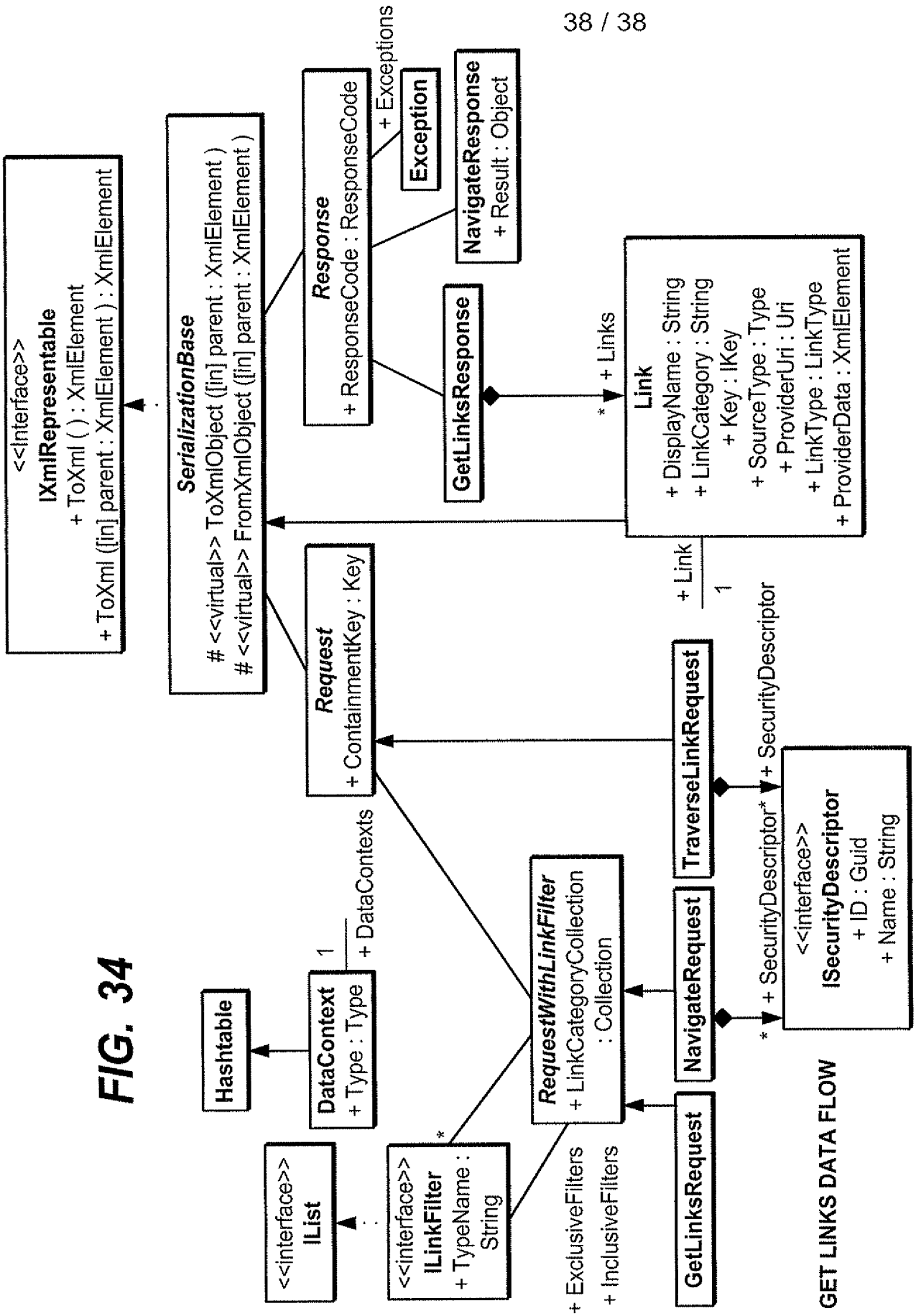

USER (E.G. SPREADSHEET PLUG-IN)
1602
NAVIGATION/HYPERMEDIA SERVICE
1604
DRILL UP PROVIDER
1606
DRILL ACROSS PROVIDER
1608
DRILL TO DETAILS PROVIDER
1610
DRILL DOWN PROVIDER
1612
LOGICAL DRILL
1614
PASS LINK CRITERION
DATA SERVICE
1630
DB SERVICE
1632
DATABASE
1636
RETRIEVE DATA
DATA WAREHOUSE
1634
TRAVERSE LINKS

FIG. 33

FIG. 34


<<Interface>>
IXmlRepresentable
+ ToXml ( ) : XmlElement
+ ToXml ([in] parent : XmlElement) : XmlElement
SerializationBase
<<virtual>> ToXmlObject ([in] parent : XmlElement)
<<virtual>> FromXmlObject ([in] parent : XmlElement)
Response
+ ResponseCode : ResponseCode
+ Exceptions
Exception
NavigateResponse
+ Result : Object
GetLinksResponse
+ Links
Link
+ DisplayName : String
+ LinkCategory : String
+ Key : IKey
+ SourceType : Type
+ ProviderUri : Uri
+ LinkType : LinkType
+ ProviderData : XmlElement
Request
+ ContainmentKey : Key
+ Link
1
+ DataContexts
Hashtable
DataContext
+ Type : Type
1
<<interface>>
IList
<<interface>>
ILinkFilter
+ TypeName : String
RequestWithLinkFilter
+ LinkCategoryCollection : Collection
+ ExclusiveFilters
+ InclusiveFilters
TraverseLinkRequest
NavigateRequest
GetLinksRequest
+ SecurityDescriptor*
+ SecurityDescriptor
<<interface>>
ISecurityDescriptor
+ ID : Guid
+ Name : String
GET LINKS DATA FLOW